The Center of Workforce Innovations
innovativeworkforce.com

Lake County INTEGRATED SERVICES Delivery Board
Working to Keep You Working

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December 29, 2005

Mr. Andrew Penca
Deputy Commissioner, Strategic Research & Development
Indiana Department of Workforce Development
10 North Senate Ave.
Indianapolis, IN 46204-2277

Dear Mr. Penca:

The Center of Workforce Innovations and the Lake County Integrated Services Delivery Board are pleased to submit our Root Causes Report for Economic Growth Region One (EGR-1).

As we have worked on this phase of the Strategic Skills Initiative, we have been pleased with the candidness of the people we interviewed and the cooperation of those who completed the surveys. We believe the information acquired gives us a good framework around which solutions can be developed.

On behalf of the SSI Executive Team and consortium members, we thank you for this opportunity which we have all taken quite seriously. We also appreciate your guidance and support throughout the process thus far.

We look forward to working towards identifying and implementing solutions which will close the gap on the job vacancy and skill shortages in Northwest Indiana while increasing opportunities for our employers. We are equally as committed to helping them stay competitive as we are to the advancement of the skills of our workforce.

Sincerely,

Linda Woloshansky
President and CEO
Center of Workforce Innovations

James H. McShane III
President and CEO
Lake County Integrated Services
Delivery Board

INDIANA WORKFORCE DEVELOPMENT

Root Causes Cover Sheet

Economic Growth Region # 1 : Center of Workforce Innovations / Lake County Integrated Services Delivery Board

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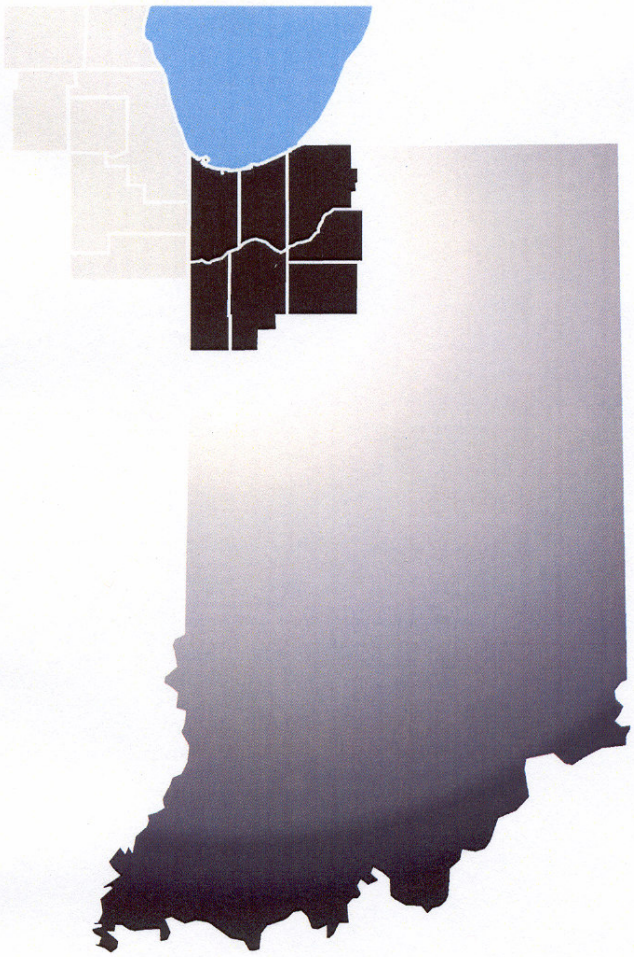
Decade of Promise: Positioning Northwest Indiana's Workforce for Economic Growth



Submitted by:

The Center of Workforce Innovations
innovativeworkforce.com

Lake County INTEGRATED SERVICES Delivery Board

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Executive Summary

Proximity to Chicago has always benefited Northwest Indiana's economy. At the beginning of the twentieth century, Manufacturing and related transportation routes established the base economy of the region and has since inextricably linked Northwest Indiana to nation's third largest city and the world's 22nd largest urban area. Today, Manufacturing continues to drive the regional economy. It's the highest value-add sector and employs the majority of workers thereby representing the bulk of the wages in the region. It is interconnected with the Transportation, Distribution and Logistics (TDL) industry, a sector where Chicagoland functions as one of the nation's critical hubs. A sophisticated TDL system is crucial to the efficient, secure transport of goods and services from firm to intermediary to global market. All of this economic activity requires ancillary industries to support the human capital behind it. The Healthcare industry is the undisputed leader in this regard. It is growing at a rate faster than the supply side can accommodate.

Manufacturing, TDL and Healthcare face industry-specific challenges yet share a common shortage, a lack of local talent to meet their needs. Communicating the human capital needs of these industries, building the education and training infrastructures, and implementing innovative workplace practices that help retain good workers and boost productivity is neither inexpensive nor easy. But Northwest Indiana people, firms and communities, together with the help of the State, are prepared to tackle these challenges.

Toward that end, the Center of Workforce Innovations (CWI), the Lake County Integrated Services Delivery Board (LCISDB) and many other firms, associations and educational institutions have launched Northwest Indiana's Strategic Skills Initiative (SSI). This project, part of a larger statewide initiative, is designed to assess industry occupation and skill shortages, identify the root causes of those shortages, and develop appropriate solutions. This report is the second of a series of three reports. It summarizes the results of the root causes analysis in which hundreds of people and firms in Northwest Indiana participated.

The SSI Team would like to thank all the people that contributed their talents, time, and efforts involved to research this phase of the SSI project.

Summary of Root Causes

In the *SSI Occupation and Skill Shortages Report*, submitted November 4, 2005, the SSI Team identified 18 occupational shortages together with critical skills gaps across those occupations in three key industries: Manufacturing; Transportation/ Distribution and Logistics (TDL); and Healthcare. These are listed in Table 1, together with shortage estimates through 2012.

Table 1: Estimated Occupational Shortages in NW Indiana by Key Industry

Healthcare					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
29-2061	Licensed Practical and Licensed Vocational Nurses	2280	60	2,360	-16
29-2052	Pharmacy Technicians	1,035	63	1,120	71
29-2021	Dental Hygienists	500	-42	570	-148
29-2011	Medical and Clinical Laboratory Technologists	340	12	380	17
29-1111	Registered Nurses	7,270	250	7,910	348
29-1051	Pharmacists	960	98	1,030	109
11-9111	Medical and Health Services Managers	530	16	600	19
	Totals	**12,915**	**457**	**13,970**	**400**
Manufacturing					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1,625	51	1,560	55
51-4121	Welders, Cutters, Solderers, and Brazers	1,975	207	1,980	378
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	2,620	28	2,580	32
41-4012	Sales Representatives, Wholesale and Manufacturing, except Technical and Scientific Products	2,360	200	2,400	231
17-2141	Mechanical Engineers	510	-1	480	-43
	Totals	9,090	485	9,000	653
TDL					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
53-7051	Industrial Truck and Tractor Operators	1,845	58	1,760	62
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	595	-1	600	-3
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	485	12	480	18
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,015	21	1,030	24
43-5061	Production, Planning, and Expediting Clerks	1,485	48	1,400	54
43-5032	Dispatchers, except Police, Fire, and Ambulance	330	10	330	9
	Totals	5,755	148	5,600	164
	Totals for 3 Industries	27,760	1,090	28,570	1,217

[1] *Based on straight-line method*
Employment Source: Indiana Workforce Development Agency

Since that time, the SSI team has participated in three Web-based workshops, conducted secondary research, administered surveys, facilitated focus groups and led work sessions with employers, individuals, young people, education and training providers and economic development and workforce intermediaries to determine the root causes of those shortages.

Key Industries' Shared Challenges

After convening discussions on recruitment and retention issues, education and training capacity, career awareness and wages and benefits, five challenges were identified that undermine the ability of all three key industries to attract the talent they need in the region:

- Healthcare, Manufacturing and TDL are all perceived as "old economy" industries by technically-skilled young people (and even by their career-changing parents). The issue manifests differently in all three industries: women are seeking careers in Healthcare at only 2/3 the rate they did a generation ago and men have not made up the difference; neither men nor women are confident that Manufacturing can offer them a good career; and few outside the industry admit to knowing very much about logistics, the fastest growing part of the TDL industry. None of these are industries of choice for the region's most skilled talent, even though all of them offer large numbers of jobs and (generally) good wages.
- These industries all have difficulty integrating innovative workplace practices, such as flexible hours, choices of benefits, professional development and advancement opportunities. They rely on shift work. They are characterized by narrowly-prescribed job descriptions. They have used technology to generate efficiency, but less often to improve job quality.
- They entail high levels of stress on the job; Manufacturing and TDL because of cost-pressures and performance demands, and Healthcare because patients are older, sicker and more difficult to care for than has been the case in years past.
- None of them have developed or maintained sufficient relationships with schools, colleges or universities to develop specific pipelines to career paths that might alleviate current shortages.
- They are changing rapidly in ways that have substantial implications for workers, but the industries have not been vocal about these changes in ways that attract talent. Globalization, technology, and demographics are all affecting what happens in these industries, but the industries are not telling their stories in ways Northwest Indiana (Jasper, Lake, La Porte, Newton, Porter, Pulaski, and Starke Counties) residents can understand and use.

The dynamics, having emerged during cross-industry work-sessions, provide important context for the root causes analysis. Most industry representatives were surprised to find so much in common with peers in other industries. Hopefully this interaction helps lay the foundation for effective cross-industry collaboration on solutions during the coming months.

Identifying Key Root Causes

Once the team moved beyond contextual similarities and asked industry experts about their specific shortages, the team was presented with an avalanche of suggested root causes. Notably, the industry partners felt strongly that shortages were attributable to industry-wide factors rather than occupation-specific causes. They also emphasized the linkages between root causes, noting "the whole effort [to address talent needs] should be greater than the sum of the parts."

From an initial list of over 70 suggested root causes, derived from focus groups, interviews and surveys, similar issues were grouped and the list was narrowed to 27. The assistance of the Industry Consortium and Executive Team members were invoked—both comprising representatives of firms, educational institutions, economic and workforce development organizations and labor unions representing key industries in Northwest Indiana—as well as 20 experts in the three target industries, Healthcare, Manufacturing and Transportation, Distribution and Logistics (TDL).

- They assigned the root cause a number from 1 (not important) to 3 (very important) for each shortage occupation in the three industries. This exercise narrowed the list of key root causes to 13, results by ranking and category (Table 3).
- They selected a Primary-"most important" and Secondary-"2nd most important" root cause for each shortage occupation out of the list of 13 key root causes (Table 4).
- They were interviewed individually to address emerging findings, validating, clarifying and amending the list of root causes and assessing the degree to which each industry and occupation would be sensitive to changes in root causes.
- They validated and signed off (cover sheet) on these findings (Table 2).

In sum, the top four overall root causes (Table 2) of occupational and skills shortages across the region's three key industries (Healthcare, Manufacturing and TDL) include:

1. Good information about key industries, jobs and careers are either not available or not used by youth, job-seekers or career changers in the region
2. Young people, job-seekers, and career changers do not have enough experience in potential workplaces or contact with industry professionals to influence their career decision-making
3. People lack confidence in key industries as good places to build careers
4. Training programs are not available in sufficient numbers to meet demand.

The degree to which each of the root causes impacts shortages in the 18 critical occupations varies, the SSI Team is confident that they play important roles—even more important taken collectively. They appear to significantly impact the ability of the industries to meet their talent needs, the people to build great careers, and the communities to thrive.

Table 2: Summary of Root Causes Analysis

Importance of Root Causes (RCs)by Industry								Comparative Importance of RCs by Occupation		Sensitivity[1]
	Importance (1-3) of Top 13 RCs by Industry/ Across Industries				Relative % of Occ Shortages Influenced by Top 13 RCs[2]			Freq. of RCs Cited as Top 2 across all Occ	Overall Importance (Freq top 2 x Average Importance)[3]	H=High M=Medium L=Low
Key RCs of Occupation and Skills Shortages	HC	MFG	TDL	Ave All	HC	MFG	TDL			
Lack of good information, which jobs and careers are available, what they pay, what the work is like, etc. is not available/used	2.40	2.40	2.80	2.53	8.73%	8.60%	9.09%	8	20.24	L
Young people do not have enough experience in potential workplaces or contact with professionals	2.40	2.50	2.90	2.60	8.73%	8.96%	9.42%	7	18.20	M
Job and career seekers lack confidence in this industry as a good place to build a career	1.80	2.50	2.50	2.30	6.55%	8.96%	8.12%	6	13.80	H
Training programs (or slots) in the region are not available in sufficient numbers to meet demand	2.20	1.80	2.60	2.20	8.00%	6.45%	8.44%	5	11.50	M
Employers in the region are not challenging workers and supporting them in developing new skills	1.80	2.00	2.10	2.30	6.55%	7.17%	6.82%	2	4.60	H
Too many skilled people leave the region to build careers	2.50	1.80	2.30	2.20	9.09%	6.45%	7.47%	2	4.40	M
Stress and burnout among employees	2.30	2.20	2.00	2.17	8.36%	7.89%	6.49%	2	4.34	M
NWI employers do not pay enough compared to jobs in other industries	2.10	1.90	2.00	2.00	7.64%	6.81%	6.49%	2	4.00	M
Employers in the region are not implementing the innovative workplace practices that newer workers demand	2.70	2.00	2.20	2.30	9.82%	7.17%	7.14%	1	2.30	M
Demographic changes (age, diversity, gender imbalances)	1.50	2.30	2.20	2.00	5.45%	8.24%	7.14%	1	2.00	N/A
NWI employers do not pay as well as those in the Chicago metro area—skilled workers commute	1.90	2.30	2.50	2.20	6.91%	8.24%	8.12%	0	0	M
Regional training program content does not correspond to employment demands	1.80	2.00	2.50	2.10	6.55%	7.17%	8.12%	0	0	M
Too much local talent commutes to Chicago for opportunity	2.10	2.20	2.20	2.17	7.64%	7.89%	7.14%	0	0	L

[1] By "sensitivity," we mean the degree to which one would expect occupational shortages to be affected by changes in this root cause. It does not suggest impact on individual person, job or firm. For example, contact with industry professional might dramatically impact the career direction of an individual in the short-term, but it would take sustained effort over time with many individuals to impact an industry-wide talent shortage.
[2]Calculate by dividing each root causes' value in each industry (HC, MFG, TDL columns) by the total numeric value off all values.
[3] Multiply the average score of the root cause by the number of times it was cited first or second most important by occupation across industries (Table 4).

Estimates of Root Causes' Contributions to Shortages

Key Findings

Across all occupations in all industries, two root causes stood out as critically important in explaining occupation and skill shortages: 1) The **absence of experience** (among young people and career changers) in Healthcare, Manufacturing and TDL workplaces or contact with industry professionals; and 2) the **absence (or non-use) of good information** about these industries among people seeking jobs and careers.

The **lack of confidence in the industry** as a place to build a career was identified as a very important root cause of shortages in Manufacturing and TDL, but far less important in Healthcare, suggesting that both job seekers and employers are aware of and confident in the growth in Healthcare. **Lack of challenge and lack of innovative practices** in the workplace scored similarly overall, but lack of challenge was *less* important in Healthcare while the absence of innovative workplace practices was far *more* important.

The **availability of training programs**, the **out-migration of skilled people seeking to build careers**, and **more competitive pay in Chicago** also scored high on importance across the three industries, though higher in Manufacturing and TDL than in Healthcare, and was rated as a primary or secondary cause in the surveys. Only two—**training** and **out-migration**—were named primary or secondary root causes. It was a surprise that training capacity in the Healthcare industry was ranked a less important root cause than it was in TDL, but the industry partners pointed to this as evidence of the lack of infrastructure supporting the TDL industry generally.[4] Manufacturing employers noted the need to increase demand for training in their industry.

Stress and burnout was also cited as a significant factor in all three industries.

Currently, it is estimated that a total of 1,090 shortages by the year 2007 and 1,217 in year 2012 among the eighteen critical occupations. But, if the most important root cause for each occupation was addressed and corrected, there would only be 637 shortages by the year 2007 and the shortages would be much more manageable by the year 2012; pending other root causes don't come into play (Table II.7).

From an initial list of over 70 suggested causes, a Ranking Exercise (pg. 16) was utilized in order to develop a targeted list of 13 Root Causes. They are divided into the following six categories (Table 3):

- Talent Pipeline Issues
- Education and Training Capacity
- Leakage and Brain Drain
- Employer Recruitment and Retention Practices
- Wage Rates and Benefits
- Other

[4] The exception was training for Nurses (and other patient-care positions that require clinicals in a care facility).

Table 3. Thirteen Most Critical Root Causes Ranked By Category

Talent & Pipeline Issues
Lack of good information (e.g., which jobs and careers are available, what the work is like, wage and benefits information) is not available and/or used by young people or job seekers in making decisions about jobs and careers ranked #1 as a cause of occupation and skills shortages across the 3 key industries. It was named as a primary cause of occupational shortages in 6 of the 18 occupations and as a secondary cause in another 2.
Young people lack experience in industries or contact with industry representatives ranked #2 as a cause of occupational shortages in the 3 key industries. It was also cited as a primary cause of specific shortages in 3 of the 18 occupations where shortages exist, and a secondary cause in 4 of the 18 occupations.
Education & Training Capacity
Training programs (slots) are not available in sufficient numbers is 4th as a root cause. It was named as a primary cause in 5 of 7 shortage occupations in Healthcare, but not at all as a primary or secondary cause of Manufacturing and TDL occupations.
Regional training program content does not correspond to employment demands ranked 12th out of 13, and was not named as a primary or secondary root cause of any specific occupation in any industry.
Leakage & Brain Drain
Too many skilled people leave the region to build their careers (out-migration) ranked 6th and was named as a secondary cause of two Healthcare shortage occupations, but none in Mfg. or TDL.
Too much local talent commutes to Chicago (for opportunity) ranked 13th (last), and was not cited as a primary or secondary cause of any specific shortage occupation in any industry.
Employer Recruitment & Retention
Employers in the region are not implementing innovative workplace practices that newer workers demand is 9th and was named as a secondary cause in one Healthcare shortage occupation.
Employers in the region are not challenging workers and supporting them in developing new skills placed 5th, and was cited once as a primary cause and once as a secondary cause of specific occupational shortages in TDL.
Wages & Benefits
Pay is not competitive with that in other industries ranked 8th and was cited as a primary and secondary root cause of shortages in specific TDL occupations.
Pay is not competitive with similar jobs in Chicago ranks 11th out of 13, and was not cited as a primary or secondary root cause of specific occupational shortages in any industry.
Other
Demographic changes (aging workforce, increasing diversity, gender imbalance) ranked 10th and was not cited as a primary but once cited once as a secondary cause in Healthcare.
Stress and burnout (job quality relative to pay) ranked 7th and was selected twice as a secondary root cause in the Healthcare industry.
People lack confidence in this industry as a good place to build a career. Is ranked 3rd of 13. It was cited as a root cause in 6 of the 11 occupational shortage categories for Manufacturing and TDL, but not at all in Healthcare.

In order to get a closer view into the root causes relevance, it has been decided to also target the importance of the root causes to each critical occupation. Table 4 shows the "most important" and "2nd more important" root cause in correlation to each of the 18 critical occupations. For further explanation regarding this table see pages 31-39.

Table 4: Estimated Occupational Shortages in NW Indiana by Key Industry

Occupational Title	Most Important	2nd-Most Important	Est. Share of Shortage[5]
Healthcare			
Licensed Practical and Licensed Vocational Nurses	Training (slots) not available in sufficient numbers	Stress and burnout	17%
Pharmacy Technicians	Lack (or non-use) of good information	Stress and burnout	19%
Dental Hygienists	Training (slots) not available in sufficient numbers	Too many skilled people leave the region to build careers	18%
Medical and Clinical Lab Technologists	Training (slots) not available in sufficient numbers	Young people/career changers lack experience or contact	18%
Registered Nurses	Training (slots) not available in sufficient numbers	Demographics (aging workforce, diversity)	14%
Pharmacists	Training (slots) not available in sufficient numbers	Employers are not implementing innovative practices new workers expect	19%
Medical & Health Services managers	Young people/career changers lack experience or contact	Too many skilled people leave the region	20%
Manufacturing			
Inspectors, Testers, Sorters, Samplers & Weighers	Lack (or non-use) of good information	Young /career changers lack experience or contact	18%
Welders, Cutters, Solderers & Brazers	Lack (or non-use) of good information	Lack of confidence in industry's ability to offer good career	18%
First-line Supervisors of Production & Operating Workers	Young people/career changers lack experience or contact	Lack of confidence in industry's ability to offer good career	18%
Sales Reps	Young people/career changers lack experience or contact	Lack of confidence in industry's ability to offer good career	18%
Mechanical Engineers	Lack (or non-use) of good information	Lack of confidence in industry's ability to offer good career	18%

[5] The estimate was derived by dividing the points each root cause scored by occupation by the total points scored by the industry out of a possible 39. The percentages do not reflect shares of the total shortages, but shares of the shortage associated with each of the top 13 causes relative to each other.

Occupational Title	Most Important	2nd-Most Important	Est. Share of Shortage[5]
Transportation, Distribution, Logistics			
Industrial Truck & Tractor, Forklift Operators	Lack of confidence in industry's ability to offer good career	NW IN employers do not pay enough compared to jobs in other industries	16%
First-line Supervisors of Transport & Material Moving Vehicle Operators	Employers are not challenging workers/upgrading their skills	Lack (or non-use) of good information	17%
First-line Supervisors of Helpers, Laborers & Material Movers	NW IN employers do not pay enough compared to jobs in other industries	Lack (or non-use) of good information	17%
Bus & Truck Mechanics, Diesel Engine Specialists	Lack of confidence in industry's ability to offer good career	Employers are not challenging workers/upgrading their skills	16%
Production Planning & Expediting Clerks	Lack (or non-use) of good information	Young people/career changers lack experience or contact	20%
Dispatchers (no Police, Fire)	Lack (or non-use) of good information	Young people/career changers lack experience or contact	20%

Importance of Skills

During Phase I of the SSI project, the team used O*Net to identify critical skills associated with each occupation. The set of skills common to the most shortage occupations include the following:

- Active Listening skills, e.g., paying attention to what other people are saying, understanding the content and asking reasoned questions as appropriate.
- Critical thinking skills, e.g., using logic and reason to identify strengths, weaknesses, and solutions to problems.
- Communication skills such as oral, reading, and writing.
- Strangely, technology skills as a category was not among the skills sets identified by O*Net, but it was an important concern to employers in the region for the occupational categories that were identified as shortages.

In the discussions with employers during Phase II of the SSI project, they agreed these skills sets were important, but also felt strongly about two things:

1. Work ethic, as demonstrated by timeliness and ability to dress and interact appropriately at the workplace, was far more important than any particular skill set; and
2. Engagement on the job, shown by exercising critical thinking and problem-solving skills, taking an active role in quality or process management and supporting team members, are increasingly important traits they look for in all employees. This is at least as important as any particular skill set, especially for entry-level positions.[6]

A major beverage distribution Vice-President and key community leader remarked, "As an employer, there is a quality issue of applicants. Employers have to lower hiring standards in the hiring process. The problem is lack of work ethic and an unprepared workforce. The Work Keys need to work with human resource departments and vice versa. Work preparation should start in the high school".

Sensitivity to Changes in Root Causes

Table 2 also assesses the degree to which changes are expected in occupational shortages resulting from changes in their root causes. The "sensitivity" factor is assessed in the last column.

Two high-sensitivity causes were identified: lack of employer challenge and lack of confidence in industry. These labels were made this way because a large employer challenging a large number of workers could happen quickly, changing the appeal and motivation in an entire workplace and offering many people more opportunity. The "lack of confidence" was labeled high impact because it was felt that a few strong stories about local success could positively impact large numbers of people in and out of the industry. News in Manufacturing in particular has been so negative, that a few good stories would be likely to generate significant "buzz," opening the door to changing community attitudes.

Two low-sensitivity causes were identified: talent commuting to Chicago and lack of information. First, it was felt that trying to lure Indiana commuters back was not a realistic first step, but even if that were possible, retaining them would still be a challenge. Second, it is felt that the provision of good information is necessary and important, but that any change in behavior resulting from better information would be specific to person or firm in the short-term and a long-term marketing challenge overtime. The provision of good information is not a promising remedy for skills shortages by itself, though it might be a powerful response in combination with other interventions.

[6] One Manufacturing employer described this need by declaring, "I have people who work on an assembly line, but I need people who can figure out how to assemble the product better and faster—or better yet, figure out a better product altogether."

The remaining findings were found to be moderately sensitive; they are important issues but demand long-term work. Importantly, the absence of sensitivity as necessarily negative is not seen. Reinventing communities, businesses and jobs just takes time.

Participation of Region Industry Consortium

The SSI team relied heavily on the regional industry partners to help conduct research and analysis of occupation and skills shortages in Northwest Indiana. Key decision-makers representing firms in the target industries, education and training providers, economic and workforce development professionals, and business and trade associations were recruited and continue to serve on the two primary project advisory groups. They are the **Regional Industry Consortium** (see Appendix G), a broad-based advisory body comprising representatives from key Northwest Indiana industries, firms and labor unions, schools, colleges and universities, chambers of commerce, trade and professional associations, and economic and workforce development organizations; and the **Executive Team** (see Appendix F)**,** a smaller, more focused decision-making body comprising key industry and community representatives.

The research team worked closely with both groups, conducting interviews with members, disseminating surveys, and just plain asking advice. Formally, the Consortium met twice (in-person), once during each phase of the project, and the Executive Team met three times, twice during Phase II. Both groups participated in conference calls between meetings.

Each group had formal and informal input into the selection of root causes for the region's key industries, including:

- Being interviewed and surveyed (samples of Phase II interview, focus group and survey protocols comprise Appendix A, attached to this report)
- Participating in formal meetings and in meetings of other stakeholder groups, such as the Chamber of Commerce and the NW Indiana Forum, where information about SSI was presented
- Receiving regular e-mail correspondence and requests for input
- Engaging in conference calls in which SSI was addressed; and
- Prioritizing and organizing root cause data toward the end of the analysis phase

In addition to the formal advisory structure, a broad array of education, economic development and industry partners were engaged informally through telephone calls, e-mail, surveys, focus groups and presentations at meetings, such as the Local Economic Development Organizations (LEDO) meeting. Also, an appeal to the WorkOne partners was made to gather intelligence on occupation and skills shortages and their root causes from their own business partners.

Staff searched their own personal and professional circles for individuals who would lend valuable insight to the project. This helped identify individuals who had once worked in one of the key industries but had changed careers, others who had returned to school, were laid

off, or continued to work in the key industries. This aspect allowed the gathering of input from a less likely tier not associated with the industry.

Finally, every point of contact with people in the professional, social, commercial and family networks was turned into intelligence gathering exercises. This kind of interaction helped frame important discussions with the Industry Consortium and Executive Team, and find language that all had in common.

This comprehensive engagement resulted in four key sources of data that developed the initial list of over 70 root causes of shortages in the three key industries:

- Survey data
- Interviews
- Focus group discussions
- Secondary source research

In the Root Cause Phase alone, the SSI Team was able to:

- Convene 11 focus groups
- Conduct 32 interviews
- Generate 122 root cause surveys

Together with the 143 employer and 216 employee surveys, 14 interviews and three focus groups conducted during Phase I, the outreach and the success of the data collection efforts instilled confidence in the findings among members of the Industry Consortium and Executive Team, as evidenced by their signatures in support of this report.

Without the commitment of these stakeholders to the economic success of the region, the SSI Team could not have done this work. The team looks forward to the next phase of the SSI project, solving some of the complex and compelling challenges identified in Northwest Indiana.

Section I: Methodology

The SSI project aims to build the overall regional capacity of Northwest Indiana in two critical areas:

- Collecting, analyzing, managing, interpreting, and disseminating labor market information; and
- Building a shared economic identity as a region

The Root Causes Report contributes towards this effort by addressing critical occupational and skills shortages through:

- Accurate diagnosis, the factors at the heart of the problem
- Resource allocation, the determinants of which resources to apply

Toward these ends, the SSI team followed the state guidelines in establishing the methodology for the research. It relied heavily upon the resources suggested by the State and the Web-based tools made available on the statewide SSI project web-site [http://www.stats.indiana.edu/ssi/reg_page.asp?reg=1]. The team also relied upon the data, both primary and secondary sources, referenced and published in the *SSI Occupation and Skill Shortages Report.*

Web-based Workshops

To facilitate identifying root causes, the State developed three web-based workshops as a part of the SSI project. The SSI team completed all of them on the following schedule:

Session 1: Digging for Root Causes
Monday, November 14, 2005

Session 2: Root Causes & Your EGR
Thursday, December 1, 2005

Session 3: Further Review & Preparing the Report
Tuesday, December 20, 2005

The Web-based workshops bolstered the capacity building aspect of SSI in the Northwest Indiana region. It streamlined the team's research and I.D. phase. This interactive tool and engaging process enabled the team:

- To discover where to uncover root causes
- To determine root causes per occupation

- To identify the common denominator across industries
- To evaluate the weight of the root causes
- To estimate the numerical portion of the occupational shortages
- To assess the sensitivity of shortages to changes in root causes
- To specify whether it's a treatable problem or a systemic condition

Session 1: Digging for Root Causes emphasized the need for secondary research and more interaction with industry experts and regional decision-makers. Since a research and analysis precedent by this team was set during the first SSI report, the message of this workshop motivated the team to up the number of points of contacts. The team reached out to industry leaders, education and training providers, economic and workforce development professionals, business and trade associations, employers, workers, and high school students. The SSI team applied the recommended methodology of drilling into the "how" and "why" to expose the underlying root cause. All of the survey applied research methods were designed to peel back the layers of symptoms to derive the root causes. Further research and analysis of primary and secondary data sources, such as O*Net and ERISS Job Vacancy Survey, aided the team in determining how occupational and skills shortages were adversely affected by the size or significance of root causes. Only by knowing if shortages are either a treatable problem or a systemic condition can the SSI team develop the appropriate solutions for the region.

Session 2: Root Causes & Your EGR proved most insightful for the team. During this collaborative online session, the team narrowed a list of 70 suspected root causes down to 23 because 47 of which were deemed "symptoms". This clarification saved a tremendous amount of time and energy in terms of in-house staff time and stakeholder involvement. From a more precise list, the SSI team was able to quickly dig deeper into the nature, size, and significance of the suggested root causes. The team identified five major challenges facing the ability of the three industries to attract the talent they need. This information will be valuable during the solutions phase. Furthermore, it facilitated the determination of the 13 key root causes of occupational and skills shortages facing the region.

Session 3: Further Review & Preparing the Report clarified for the team some technical aspects of quantifying the estimates and sensitivity of root causes to occupational and skills shortages. It also tilled the ground as the team prepares for the solutions phase.

Overall, the Web-based workshops aided in quantifying the reasons behind gaps in supply and demand of skills/occupations and the size of contribution shortages.

Alternative Methods

Maintaining the line of sight, data culled from the Occupational & Skills Shortages Report, served as a basis for identifying causal relationships within the Root Causes Report. Regional engagement of industry leaders, experts and key partners, like the Industry Consortium and Executive Team, functioned like a nerve center communicating information and ideas to the SSI team. Their participation in the following alternative research methods signals a genuine interest in the region to better understand and more aptly address the root causes to occupational and skills shortages.

Electronic and Paper Surveys were administered via email or in-person as information-gathering tools (see Appendix A, B, C, D). Electronic surveys were administered during both SSI research phases, *Occupational & Skill Shortages and Roots Causes*. During Phase 1, the results of 143 Employer and 216 Employee electronic surveys were compiled to identify occupational and skills shortages and to solicit general reasons for those shortages. During Phase 2, 122 surveys identified more specific factors attributing to the shortages.

Formal and Informal Interviews consisted of a prescribed set of questions using either a short form or a long form survey protocol (see Appendix A and C). The protocols were used during either the one-on-one interviews or focus groups. The analyst team began by interviewing seven former occupation holders of critical jobs to understand some of the real world dynamics at play. Then, on November 21, 2005, the team set up a trade booth at the "NWI Moving Forward" Transportation Summit in order to interview TDL employers and professionals. Lastly, team staffers utilized professional, commercial and personal networks to identify individuals who had once worked in one of key industries and had changed careers, others who had returned to school, others who had been laid off, and others still seeking gainful employment in one of the industry clusters. This approach enabled the team to gain input from another tier of community stakeholders.

Focus Groups offered structured opportunity to discuss the ways in which employers, employees, educational institutions, students, Industry Consortium and Executive Team experience and react to shortages in the three targeted industries. The SSI team met with:

- Nursing Symposium, July 25, 2005
- Center of Workforce Innovations Workforce Investment Board, November 16, 2005
- Northwest Indiana Forum, November 17, 2005
- Edison High School Students (11th Graders), November 22, 2005
- Executive Team Meeting, November 29, 2005
- TDL Employers and Professionals, November 30, 2005
- Manufacturing Employers, December 6, 2005
- Industry Consortium, December 8, 2005

- Lew Wallace High School Students (12th Graders), December 9, 2005
- Healthcare, Sisters of St. Francis Health Services, December 12, 2005
- Executive Team Meeting, December 13, 2005

Root Causes

Ranking Exercises concluded the root cause analysis. Members of the Industry Consortium and Executive Team assigned a value of 1 (not important), 2 (important) or 3 (very important) to each root cause in each of the three key industries. This simple technique fostered the creation of Table 2-Summary of Root Causes Analysis. The importance of each of the 13 root causes is fully described by industry, by occupation and by sensitivity to change.

Table 4 is a result of 20 employers using the list of 13 root causes to assign a "primary" and a "secondary" root cause to each shortage occupation. The table shows each occupation along with the top root causes by frequency in both the "primary" and "2nd most category".

Table 3 shows the final selected 13 root causes ranked by the below list of categories:

- Talent Pipeline Issues
- Education and Training Capacity
- Leakage and Brain Drain
- Employer Recruitment and Retention Practices
- Wage Rates and Benefits
- Other

Suggested root causes were mostly attributable to industry-wide and skills set phenomena more so than specific occupations. For example, employers expressed great concerns with the lack of work ethic, specifically timeliness and ability to dress and interact appropriately at the workplace, and the lack of engagement on the job, especially for entry-level positions.

The research process generated sufficient information for analysis to occur on cross-industry, categorical, occupational and skills sets levels. From a list of over 70 suggested root causes, the analysis derived 13 root causes (the root causes listed in bold are among the 13). They were divided into the following six categories then weighted the results through ranking exercises:

Employer Recruitment and Retention

From Phase I, employer-based sources used in this analysis included the ERISS and the localized SSI industry employer surveys. The survey results for recruitment show that employers' preferred method for recruitment is the referral. Of 106 employers, 79% use referrals as their primary recruitment method. Employers in Health Care and TDL industries use this method at a higher rate than employers in Manufacturing.

During Phase II, the second employer online survey confirmed that referrals were a primary hiring method followed by newspapers. Survey respondents indicated that Health Care and TDL employers use referrals 50% of the time while Manufacturing employers used it 35%. In addition, focus group participants valued referrals for yielding more credible and qualified applicants than other "off the street" recruiting efforts. Referrals seem to reduce the number of applicants submitting false credentials. Another recruitment tactic used predominately by Health Care employers is the bonus. Survey results show that sign-on bonuses range between $2,500-$8,000 and that Manufacturing and TDL industries seldom use this recruitment tool. In Health Care, a favorable retention tool is tuition reimbursement, which aids, for example, in the career laddering of LPNs to RNs.

In the end, employers identified six root causes related to employer recruitment and retention. Industry Consortium and the Executive Team then assigned a numerical value of importance to each root cause. The most significant root causes are bolded with the complete rankings for this category compiled in Table 2.

- Employers' recruiting methods are not reaching available skilled workers
- Employers are not screening out skilled applicants
- Employers are not sufficiently orienting new workers to the job, company, industry and career
- **Employers are not challenging workers and supporting them in developing new skills and talents**
- **Employers are not implementing new workplace practices in ways newer workers demand**
- Employers are not competently measuring, recognizing and rewarding high performance among employees
- **Stress and burnout among employees**
- **Lack of confidence in industry as a good place to build a career**

Education and Training Capacity & Student Completion/Placement

During Phase I, this category's findings showed that regional training programs related to the 18 occupations were at capacity, with the exception of health services manager and the exemption of diesel mechanic for which there is no program. This research phase reaffirmed the previous findings and found that all existing programs offer flexible class schedules to accommodate working students.

The industry partners identified six root causes related to education and training capacity & student completion/placement. Industry Consortium and the Executive Team then assigned a numerical value of importance to each root cause. The most significant root causes are bolded with the complete rankings for this category compiled in Table 2.

- **Regional training program content does not correspond to employment demands**
- Training programs have excess capacity/not enough enrollment
- **Training programs (or slots) are not available in sufficient numbers**
- Training programs are not sufficiently distributed throughout the community---people cannot get to them
- Training programs are not scheduled to accommodate working people who are likely to enroll in them
- The cost of training is prohibitive

Student/Worker Career Awareness Access

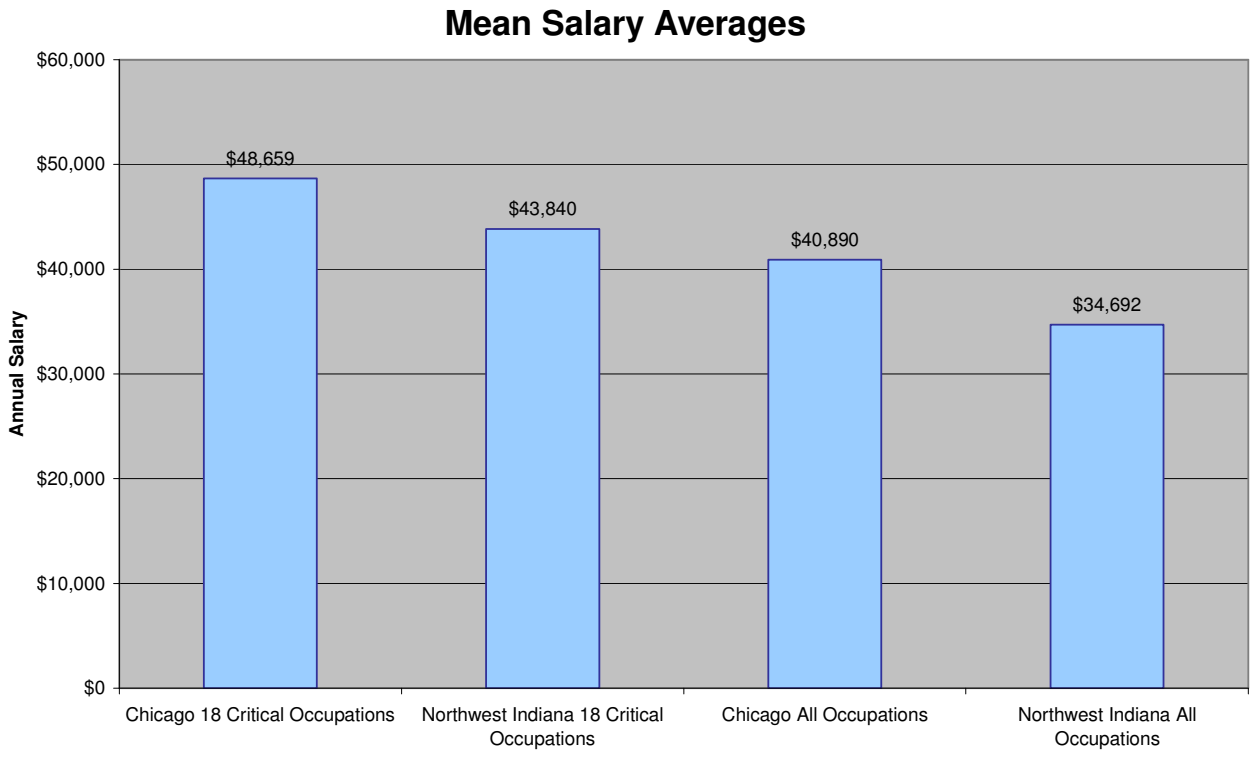
During both research phases, the youth focus groups negatively described the quality of career guidance offered within the high schools. For instance, the guidance counselor to student ratio is too high resulting in less guidance time per pupil. They desired more access to good career information and job readiness programs, such as employer-based seminars or internships. Many of the young people perceived the region as unable to furnish them with good-paying and secure employment. Some even expressed that they wanted to move out of the area, or at least to Chicago, for better life opportunities. The industry partners in part agreed with the youth based upon the six root causes attributed to student/worker career awareness access including, talent pipelines issues and leakages. Industry Consortium and the Executive Team then assigned a numerical value of importance to each root cause. The most significant root causes are bolded with the complete rankings for this category compiled in Table 3.

- **Good information---what jobs & careers are available, what they pay, what the work is like, etc.**
- **Young people do not have enough meaningful experience in potential workplaces or contact with industry professionals to positively influence their career interests/decisions**

- Students lack preparation to enroll in training /college/certification programs and successfully complete them
- **Too many skilled people leave the region to build their careers**
- Too many students who enroll in the region's colleges and universities leave the state when they complete their education and training
- **Too much local talent commutes to Chicago**

Wage Rates & Benefits

Wage data and focus group feedback revealed that wage rates and benefits is a major issue due to the region's proximity to the Chicago labor market. For example, there is a $4,819 disparity between Chicago and Northwest Indiana annual wages in the 18 occupations. And, the Industry Consortium and Executive Team both elaborated that across the board the differential may actually exceed $10,000.



Source: Department of Labor and Indiana Workforce Development Agency, 2004

Industry Consortium and the Executive Team felt that both identified root causes were of importance. The complete rankings for this category compiled in Table 2.

- **Employers in the region do not pay enough for these jobs compared to jobs in other industries**
- **Employers in the region do not pay as well as employers in Chicago metro area, so skilled workers commute**
- Benefits are not competitive with those other industries
- Benefits are not competitive with those other locations/regions

Other

- **Demographics changes (aging workforce, increasing diversity, gender imbalances)**
- Workforce is not sufficiently diverse – it doesn't attract other diverse workers

Relevant Sources

Through the research process, the SSI team recorded individual commentaries and summarized group sentiments. The following voices highlight the findings and quotes of these relevant sources:

Voices of Former Occupation Holders

A former first-line supervisor of material movers stated that the position held no room for advancement. The new position as Business Manager of Strategic Planning & Research was more of a challenge that not only required critical thinking in day-to-day operations but applied knowledge gained through a MBA. A former sales representative expressed that the fluctuating income of commission-based pay may hinder workers from selecting this field and offered a solution to improve communications between sales representatives, human resources and/or corporate to improve revenue streams. Three experienced registered nurses responded to the team's inquires by saying that this occupation is extremely demanding and stressful, which can adversely affect the quality of patient care. While the pay was good and the position offered scheduling flexibility, hospitals in particular remain a challenging work environment. The pharmacy technician echoed the stressful work environment created by the hospital environment but exacerbated by operational practices, such as compensation inequities and other departmental occupational shortages.

Voices on Manufacturing

"It's the industries that matter. There isn't a lot of give in the system now so wherever demands change or increase the most, the shortages will be the most severe. It's a function of the state of the industry, not the shortage area itself."

"As an employer, there is a quality issue of applicants. Employers have to lower hiring standards in the hiring process. The problem is lack of work ethic and an unprepared workforce. The Work Keys need to work with human resource departments and vice versa. Work preparation should start in the high school."

"We were going to move to Northwest Indiana four years ago but you don't have the infrastructure."

"Increasing though, we are encouraging employees at all levels to get training."

"We hire from within as a way to reduce occupational shortages."

Voices on TDL

"Firms within the TDL industry struggle with how to define this industry."

"A critical lack of job/career awareness in both TDL and Manufacturing."

Voices on Health Care

"For RNs, it takes forever to recruit. . .Training opportunities in the area are very limited. The other thing that's hard is dealing with the changes the accreditation bodies are always making. . [it] makes an already bad situation worse."

"Most LPNs don't have the resources to complete a 4-year RN degree. There are people out there that want to become professionals in the Healthcare industry but they can't get into any programs because their high school transcripts weren't stellar or good enough. They simply can't get in the programs. Most programs require a 3.2/4.0 GPA, or they need remedial training before they become accepted, it takes too long."

"If the 2 year degree isn't going to be offered close to the hospitals then we're going to have more of a difficult time attracting RNs because if training is only offered east of us then it doesn't benefit the student to come work for us. A lot of employees get trained and end up working in Chicago because they can do better financially. We can't recruit more than we are doing because all the classes are full, we need more capacity. . .Applicants aren't prepared for interviews, they lack basic skills, they seem not to care, and they don't realize how much patient care is involved, poor work ethics."

"Classrooms are too small. Potential employees lack basic skills, maybe the classrooms don't teach them. Maybe we should have a database for job shadowing."

"There is no funding for instructors."

"Credentials take too long."

"While in high school, students didn't realize how important their education was for them so they didn't try and received poor grades. It has long-term effects on their future that they didn't realize at the time."

Voices from High School Students

"I'm going to move to Chicago to make more money."

"There are no jobs available in Northwest Indiana."

"Support more internship programs."

"Help you find and be ready for your job."

"Bring courses of these studies in our schools."

Voices on Education

"Career awareness appears to be an issue based."

"It feels like a capacity issue---we can't get people through the training systems fast enough, but we also know that if there were more people in the pipeline pressing to get in, the system would adapt."

Voices on Occupational & Skills Shortages and Root Causes

"The transportation infrastructure needs to be upgraded, Northwest Indiana lags behind the Chicagoland area. . . our students and employees need better access to transportation." "High schools aren't preparing the students, they lack fundamentals, very weak in math and science." *Health Care*

"We are generous with bonuses and offer lots of advancement opportunities. It's finding people—that's the problem. We don't recruit certification people. We want [employees] with degrees. It's not just the skills and experience but maturity."
Information Technology

"Hiring programs tied to tax abatements and bonds are effective ways to source local talent for career ladder employment opportunities. Entrepreneurship as a new employability skill." *Financial Services*

"Advancement opportunities are diverse, many paths not one. We value entrepreneurial skills. We're fun." *Health & Human Services*

Section II: Description of Root Causes and Their Impacts

1. Young people do not have enough experience in potential workplaces or contact with professionals

In focus groups and individual surveys of high school students, many responded that they do not have enough direct experience or contact with anyone in various industries to make an informed opinion about career options or occupational choices. This was also confirmed by educators and employers, who deemed this root cause as a major reason why there are critical occupational shortages in all three industries: Healthcare, Manufacturing and TDL. Young people are graduating from high school without any relevant experience and/or exposure that could help them gain employment in a particular field. As such, they are not qualified for most jobs that require some level of skill and knowledge, or at least some minimal experience. They also have no network of contacts within a particular industry in order to find out what types of skills are in demand, or how to get a foot in the door with an entry-level position. Good relationships between employers in these three industries and local high schools are negligible.

2. Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.

Students and employers alike mentioned that there was not enough information regarding occupations, career paths, wages and benefits, or what kind of activities various jobs entail. Young people have many perceptions about Manufacturing, probably as a result of their parents' point of view, opinions include jobs are dirty, manual labor, and for people who are underachievers. People misunderstand that Manufacturing jobs actually pay much higher than most service or retail occupations and usually require a high skill level. For the TDL industry, few young people can identify additional jobs besides truck driver or warehouse worker. Healthcare suffers much of the same fate, with most young people only able to identify doctors and nurses as occupations.

3. Employers in the region are not implementing new workplace practices that today's workers demand

Employers are having difficulty implementing innovative workplace practices such as; choices of benefits, flexible hours, no weekends, no overtime, professional development and advancement opportunities. Industries rely on shift-work and most even operate 24 hours a day. There very well may be a generational gap in expectations of employers and potential employees. "Lack of work ethic" is often mentioned by employers as a challenge to hiring and keeping good employees. However, the survey of people who left a particular occupation indicates that poor management practices and inflexible schedules were a major reason why they left a particular field that they actually enjoyed working in. For Healthcare, people were much more likely to report that the high level of stress caused them to seek a more work-friendly environment…even at a lower level of

compensation. It could be that today's newer workers are less likely to spend 5 to 10 years in a career that doesn't meet their expectations or work for an employer that does not engage them properly.

4. Job and career seekers lack confidence in this industry as a good place to build a career

Healthcare enjoys a perception as an industry that will always have a need for more workers. People who begin a career in Healthcare as a nurse or technician tend to stay in the field, though they may migrate to affiliated employers for various reasons—i.e., more flexible schedules and/or better compensation or work environment. For instance, the enormous increase in hiring by the growth of acute care facilities over the last several years has given Healthcare workers more choices than nursing homes and hospitals. This has led to the practice of significant sign-on bonuses to attract and keep RNs at most hospitals in the region…and many prerequisites and preferential schedules for more experienced workers. However, new job seekers are more reluctant to "pay their dues" through mandatory overtime, shift work, and having to perform less desirable duties.

In Manufacturing and TDL, employment continues to decline in most sectors…with most new job openings resulting from retirement and turnover rather than actual business growth. Recent closings by local manufacturers have received a lot of press, along with continued reports of outsourcing to other countries. This has a negative impact on young people who are looking for a stable industry to stake their careers. TDL companies tend to be extremely flat organizations, with little room for career advancement. And the nature of performing low-margin, high-volume work in a highly regulated and stressful environment has caused many would-be job seekers to look for employment in more stable industries.

5. Employers in the region are not challenging workers and supporting them in developing new skills

Employers tend to hire people with the skills they need rather than investing in formal training programs. Most training provided by employers is on-the-job (OJT). Employees who filled out root cause surveys indicated that professional development was a low priority with their employers. Employers who filled out root cause surveys chose "Critical Thinking" as a specific skill set that most applicants lack for these eighteen critical occupations in Manufacturing and Healthcare, with an even split between "Critical Thinking" and "Active Listening" for TDL.

6. Demographic changes (aging workforce, increasing diversity, gender imbalances)

As the region continues to age, so does its workforce. In some hospitals, most nurses are in their mid-40's. As they begin to retire, it will be very difficult to replace them, given the current limitations in the pipeline for new workers. In TDL, workers tend to work for shorter stints than previous generations. For many Manufacturing employers, their most

highly-skilled workers are in their 40's and 50's. Most new hires might not realize how much more skilled the entry-level jobs have become and how important it is to pursue some type of technical experience. TDL appears to have the most diversity among various occupations. Manufacturing is still primarily a male domain, and various occupations in Healthcare (especially nursing) are dominated by women, even though less are entering this industry. Traditional gender roles for some occupations seem to be difficult to break. Over 20% of the total workforce in these three industries is between the ages of 45-54[7]. There are 30% less women entering the Healthcare industry than a generation ago, and men aren't making up the difference.[8]

7. NWI employers do not pay as well as those in the Chicago metro area, so skilled workers commute

The workforce in Northwest Indiana is very mobile. Almost 45,000 people commute every day from our Region into Illinois for employment. But less then 14,000 workers from Illinois commute to Northwest Indiana for employment[9]. One of the primary reasons for this is the higher wages paid by employers in Illinois. The average annual mean salary for the 18 shortage occupations (Table 1) are $48,659 for occupations in Chicago compared to $43,840 in Northwest Indiana. For all occupations in Chicago the average annual mean salary is $40,890 and $34,692 for Northwest Indiana[10]. The shortage occupations pay approximately 11% more in Chicago and all jobs pay almost 18% more.

8. Stress and burnout among employees

Most often, this root cause is attributed to Healthcare and TDL. For Healthcare, people say that they do not have adequate staffing for the workload; the nature of the work is very demanding, and requires attention to detail that has no room for error. Add to this the need to deal with crises on a daily basis and make life and death decisions, and it is understandable why people leave for a less stressful environment.

For TDL, companies tend to work in a very flat, lean environment, people often have to do "more with less" and meet very strict deadlines for customers. This causes a lot of stress for drivers, dispatchers, warehouse workers, and those who manage them. For some occupations, the work tends to become monotonous, with little variety or ability to make the job more interesting or complex.

A stressed and burned out employee can be a handicap to any organization. This person might be tired of doing the same thing repeatedly. Their tasks have become so repetitive that they stop caring, which can result in mistakes being made and can be costly to an organization. They may have a tendency to call off more than the average employee and have problems with punctuality.

[7] Indiana Workforce Development Agency
[8] American Nurse Association Facts on the Nursing Shortage, 2004
[9] Indiana Department of Revenue 2003 Tax Return data
[10] Department of Labor & Indiana Workforce Development Agency

9. Too many skilled people leave the region to build their careers

Many workers build their skills and work experience in the region, then move outside of the region to work for larger firms. Only 6 percent of the employers in the seven counties of Northwest Indiana employ 50 or more employees. Often, smaller companies are less likely to offer competitive salary or benefits, causing many workers to seek larger employers outside of the region—if they cannot commute, they move out of the region altogether.

10. Too much local talent commutes to Chicago

Partially addressed in number 7. This response indicates a frustration with attracting skilled workers who do not choose to fill open positions in the region. Many people are migrating from Illinois to Northwest Indiana, yet keeping their jobs with an employer in the Chicago metro area. They often choose not to take a cut in pay by working for local employers, who typically offer jobs with wages that are 10–20 percent less than wage levels in Illinois. There may be another gap due to the employers' inability to recruit skilled workers. Most employers rely on word of mouth rather than advertising their positions. Qualified people who live in the region may not be connected to these informal networks to find out about such job opportunities.

11. Training programs (or slots) in the region are not available in sufficient numbers

This root cause is difficult to measure since most waiting lists are usually for Healthcare programs, especially for nursing. Even then, a person may be on the waiting lists of several schools in the region, which skews the actual number of people waiting to get into a nursing program. No doubt, there are more people interested in nursing programs than ever before, and all schools report that their programs are at capacity. Getting these training providers to increase their class size is not usually an option since students who complete the program are guaranteed to participate in clinical studies, which is a large constraint since employers can only accommodate a certain number of students at any given time. Increasing the number of classes offered is difficult due to the shortage of available, qualified instructors, classroom and scheduling constraints. In addition, the impact on taking prerequisite courses from other departments also delay the schedule.

12. NWI employers do not pay enough for these jobs compared to jobs in other industries

In Manufacturing, this root cause applies mostly to entry-level positions, since occupations that require skills and/or experience often outperform the wage levels of most other industries. For TDL, this root cause is often a problem since turnover is usually the result of low pay and benefits. People who leave Healthcare for higher pay in other industries often come from the lower-paying occupations, like CNA, LPN, health aide, health technician, and pharmacy technician. Any position that requires 2 years or

less formal education and mostly on-the-job training is at risk of having higher levels of turnover as people seek better paying jobs in other industries.

13. Regional training program content does not correspond to employment demands

Depending upon whom you talk to, there is a discrepancy on the amount of communication and feedback employers have with regional training programs. Educators and training providers insist that they talk to employers on a regular basis to determine what skills and abilities they are looking for in graduates, and to look for placement opportunities. Outside of Healthcare, the vast majority of employers in Manufacturing and TDL say that they are never contacted by educators or training providers, and do not utilize them in their recruitment efforts. Employers cite difficulties in finding graduates who are ready to work within specific occupations, and view applicants' educational profiles as a determination of whether that person is able to complete assigned tasks.

Relative Importance of Root Causes to Addressing Skill Shortages

The root causes of various occupational shortages have already been defined and categorized. How those root causes translate to addressing skill shortages requires a closer look at what people actually need to know in order to perform their jobs in each chosen industry and critical occupation.

For Manufacturing, most of the root causes are common to the industry, rather than a specific occupation. Most people who work in Manufacturing received on-the-job training rather than a formal education. The prerequisites for employment in Manufacturing are rapidly changing as employers upgrade equipment and processes, increase their use of automation and computers, and increase the complexity of tasks. Most employers offer entry-level employment that does not require post-secondary education. While manufactures used the vocational programs of local high schools to provide students with classes that developed their mechanical aptitude and provided a basic understanding of working in a shop or Manufacturing environment, this is now changing, many of these programs are disappearing as schools continue to close the gap in their budgets by focusing on Core 40 programs at the expense of their vocational curriculum.

There are still apprenticeship programs available that provide valuable skill training and access to employment at the steel mills and other companies with a union presence, but for employment at nonunion firms, it is more difficult for young people to learn a craft other than through training provided by an employer. There is a large pool of former Manufacturing employees with skills and experience, who are willing to work for substantially less pay and benefits—and often find themselves working in service or retail jobs. However, they often lack the technical skills found in a 2-year postsecondary program that more progressive employers are looking for. Employers tend to hire the skills they need rather than rebuild their training programs or invest 2 to 3 years to train

a young person who may then leave for another employer. Any long-term solution to addressing skill shortages in Manufacturing will have to take into account the pipeline for young workers has to be rebuilt from the ground up to provide students with an understanding of what opportunities are available, what skills they need, and how to acquire them to gain employment in Manufacturing. It also suggests the need to retool adult education programs to provide short-term intensive training that leads to a recognized credential with proven technical skills that employers are seeking.

Healthcare occupations require licensure by the State of Indiana through accredited educational programs and tend to have accountability that can measure and certify the skills of students before they are employed. The formal programs that provide such training are designed to give students the skills they need. However, Healthcare employers cite the lack of soft skills—poor work ethic, poor communication skills, or sense of responsibility—as major problems that need to be overcome, rather than a need to increase occupational skills. At least one Healthcare employer, La Porte Regional Health Care Systems, has successfully implemented a program to increase these skill capabilities throughout their facility, with a focus on quality and customer satisfaction that recognizes and rewards employees' efforts, and keeps the workplace fun (in their own words). The result of such training has been a tremendous reduction in turnover, and national rankings as one of the Best Employers to Work For (among the top 300 in the United States) and in July 2005, La Porte Hospital's Respiratory Therapy services ranked number 47 in *U.S. News and World Report's* 50 Best Hospitals for Respiratory Disorders. They are willing to provide such training and guidance to other employers as well as part of their mission to serve the community. A plan to utilize their work as a model for increasing the soft skills capacity of workers throughout the industry.

For TDL, entry-level occupations usually require minimal on-the-job training. The occupations on which we are focusing require more experience and some formal training. The actual skills shortages that are most often attributed to workers in the industry seem to stem from having low expectations. Employers have difficulty hiring what they consider to be "good people" and end up hiring people who are unlikely to stay on the job or are difficult to motivate. Hiring practices tend to rely on a "numbers game" approach—they keep hiring a lot of people and hope that enough of them "stick" to their jobs to keep the doors open. Young people are not being prepared or recruited for the industry through formal connections between employers and schools. They do not know what occupations are available, what they pay, or whether they can build a career in the industry. They seem to fall into a job, and if they stay long enough, they may be promoted to fork lift driver, dispatcher, a clerk or even first-line supervisor by virtue of their ability to stay employed and acquire on-the-job skills as needed. Most likely, they will not receive formal skills training in supervision or technical matters, yet be fully expected to perform their jobs. Diesel mechanics require extensive training and mechanical skills, which increasingly requires an education at a formal program. A long-term solution for skill-building in TDL would benefit from having a consortium of employers that can cooperate to set a standard for various skills by occupation and

formalize their connection with training providers and schools in order to build a more efficient worker pipeline.

How Root Causes Were Identified

Focus groups, interviews, paper and online surveys with industry employers, their employees in the critical occupations, people who left these occupations, educators and training providers, high school students, college students, community leaders, Workforce Investment Board members, SSI Consortium members, and the SSI Executive Team were utilized.

Responses also came from surveying those who attended the nursing symposium, TDL employers who attended a recent regional TDL summit (that drew over 600 attendees), and various groups of Manufacturing employers affiliated with Chambers of Commerce and economic development organizations.

Information and research is included from recent articles on local companies, association and industry reports, and research from workforce development professionals and organizations with similar challenges.

Root Causes Ranked

In Table II.1, the team narrowed an original list of over 70 root causes that were accumulated over months of research down to a much more manageable list of 13 by importance. Before it was a list of 13, the root causes were narrowed to 27 across all three industries. The team took that list of 27 root causes and had the Consortium Members assign a numerical value of 1 (not important), 2 (important) or 3 (very important) to each root cause (reflecting the importance in each industry). The team then took the results of the Consortium's findings and dwindled down the list to these 13 root causes, based on the highest averages (Importance (1-3) of Top 13 RCs by Industry/ Across Industries) of all three industries. The team contacted 20 representative employers in each industry and had them rank and attach a root cause to each of the eighteen occupations. They were asked to first assign one root cause based on the most important (Primary) relationship and also attach a secondary root cause to each occupation. The list below shows the root causes by importance to each industry. A list of the top root causes specific to each occupation can be found in Tables II.2, II.3, and II.4. The goal was to determine which root causes were the most important to each occupation.

This list was then given to the Executive Team who was asked to validate, they agreed with the findings. This list was created based on the importance of each root cause to the industries as a whole and not to any specific occupations. The highest score in each column indicates the most important root cause by industry and overall importance score indicates most important the root cause across the three industries combined.

Table II.1 Root Causes Ranked across Three Industries

Key RCs of Occupation and Skills Shortages	Importance (1-3) of Top 13 RCs by Industry/ Across Industries				Freq. of RCs Cited as Top 2 of all Occ	Overall Import. (Freq top 2 x Ave. Import.)
	HC	MFG	TDL	Ave. All 3		
Lack of good information, which jobs and careers are available, what they pay, what the work is like, etc. is not available/used	2.40	2.40	2.80	2.53	8	20.24
Young people are not experienced in potential workplaces or contact with experts	2.40	2.50	2.90	2.60	7	18.20
Job / career seekers lack confidence in this industry as a good place to build a career	1.80	2.50	2.50	2.27	6	13.60
Region training programs (slots) are not avail. in sufficient numbers to meet demand	2.20	1.80	2.60	2.20	5	11.00
Employers in the region are not challenging workers and supporting them in developing new skills	1.80	2.00	2.10	1.97	2	3.93
Too many skilled people leave the region to build careers	2.50	1.80	2.30	2.20	2	4.40
Stress and burnout among employees	2.30	2.20	2.00	2.17	2	4.33
NWI employers do not pay enough for these jobs compared to jobs in other industries	2.10	1.90	2.00	2.00	2	4.00
Employers in the region are not implementing innovative workplace practices to meet newer workers demand	2.70	2.00	2.20	2.30	1	2.30
Demographic changes (age, diversity, gender imbalances)	1.50	2.30	2.20	2.00	1	2.00
NWI employers do not pay as well as those in the Chicago metro area—skilled workers commute	1.90	2.30	2.50	2.23	0	0.00
Regional training program content does not correspond to employment demands	1.80	2.00	2.50	2.10	0	0.00
Too much local talent commutes to Chicago for opportunity	2.10	2.20	2.20	2.17	0	0.00

Taking a look at these top root causes in relationship to the three industries (Overall Importance) it was determined that “Lack of good information, which jobs and careers are available, what they pay, what the work is like, etc. is not available/used” as the most relevant root cause. This root cause is among the top two for the Manufacturing, TDL, and 3rd for Healthcare, which is an indication that potential entrants lack the knowledge about these industries and how to go about entering these occupations.

The second most important root cause among the three industries is that “Young people do not have enough experience in potential workplaces or contact with professionals”. People who want to enter these fields aren’t sufficiently preparing themselves, which can result in an applicant not being able to get hired because they lack the qualifications to perform the duties of the occupation. Applicants lack a network of contacts within their particular area of interest; therefore, are not able to be referred to an open position.

Industry specific results can be found by looking under (columns HC, MFG, TDL). For example, Healthcare results indicate (score 2.70) that the number one root cause is "Employers in the region are not implementing innovative workplace practices to meet newer workers' demand", which would show that most employers don't structure their policies and procedures to meet the demands of the new workers entering their establishments. They may have to evolve their practices around their employees, in other words, the companies need to give their employees what they want. Maybe it's a flex-schedule? Or more down time? How are they addressing "stress and burnout in the workplace", which is ranked fourth in healthcare. They need to establish recruitment strategies that will bring in the good employees. Then they need to be able to retain employees once they're hired. What do the healthcare firms need to do in order to distinguish themselves from their competitors?

"Training programs (or slots) in the region are not available in sufficient numbers to meet demand," is the fourth important root cause between the three industries. It's the third most important to TDL, fifth to Healthcare and seventh to Manufacturing. And six of the seven shortage occupations in healthcare have minimum education requirements of a post-secondary education, ranging from postsecondary vocational training to a first professional degree. And only one of the five shortage occupations in TDL requires any post-secondary education. And two of the six occupations in manufacturing require some type of post-secondary education. For a comprehensive list of education requirements for all 18 critical occupations in shortage please see Appendix E.

Qualitative Assessment of Root Causes

Healthcare

Let's take a closer look at a qualitative analysis of each occupation within three industries. We'll start off by digging deeper into the healthcare industry. According to Chart II.2, there are seven root causes that seem vital to the occupations within this industry.

Table II.2 Healthcare-Top Root Causes

Healthcare	Root Causes	
Occupation	**Primary**	**Secondary**
Dental Hygienists	Training programs (or slots) in the region are not available in sufficient numbers	Too many skilled people leave the region to build their careers
Licensed Practical and Licensed Vocational Nurses	Training programs (or slots) in the region are not available in sufficient numbers	Stress and burnout among employees
Medical and Clinical Laboratory Technologists	Training programs (or slots) in the region are not available in sufficient numbers	Young people do not have enough experience in potential workplaces or contact with professionals
Medical and Health Services Managers	Young people do not have enough experience in potential workplaces or contact with professionals	Too many skilled people leave the region to build their careers
Pharmacists	Training programs (or slots) in the region are not available in sufficient numbers	Employers are not implementing new workplace practices that meet newer workers demand
Pharmacy Technicians	Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.	Stress and burnout among employees
Registered Nurses	Training programs (or slots) in the region are not available in sufficient numbers	Demographic changes (aging workforce, increasing diversity, gender imbalances)

This industry seems like it has its share of issues and concerns, because of the wide range of root causes tied to it. Although there are quite a few root causes in relation to this industry there is one that stands out, "training programs (or slots) in the region are not available in sufficient numbers". This is the primary root cause for five of the seven critical occupations. The education infrastructure currently can't accommodate all the students that want to pursue an education or certification for these occupations simply because they have all their seats filled. Their production capacity is maxed out and can't accept any more students into their programs. In some cases, we don't even have programs. Here are some additional details on root causes by occupation.

Dental Hygienists: There is one school in the region (Indiana University Northwest) that offers an education for a dental hygienist. They accept 24 students per year and for the past five years have been graduating 21 of them. However, according to a representative from their program, they are turning away hundreds of applicants each year. At this time they have no ability to increase capacity. Another factor to consider is that even though the salary is relatively high, full-time jobs are difficult to come by. Many Dental Hygienists in the region are only employed on a part-time basis, and seek better employment conditions (full-time with benefits) in the Chicago market.

Licensed Practical and Licensed Vocational Nurses: This occupational shortage shares a lot of common traits with those of Registered Nurses. There are more people

applying to these programs than there are available slots. Another factor is that hospitals have been moving away from hiring LPNs for the last several years, which has caused a major migration of these occupations to nursing homes and other long-term care facilities. Nursing homes tend to have less pay and benefits, and can be a more stressful environment. Few LPNs are able to make the transition to RN or BSN on their own—and a nursing home employer would be unlikely to encourage such a move since this person would then want to leave for a better opportunity somewhere else. This causes many LPNs to simply leave the field.

Medical and Clinical Laboratory Technologists: There are several programs in the region and throughout the State of Indiana that provide the 2-year Technologist program, but in order to become a Technologist, students must complete a third year at an approved school with higher level biology, chemistry and math courses, then complete their fourth year as an intern with an approved employer. The only employer in the region that still offers this program is St. Margaret Mercy Hospital (SMMH) in the City of Hammond. This internship program provides additional coursework and clinical training that results in a certificate of completion from SMMH, and a Bachelor's degree from the referring university. Currently, they can only accept 6 students per year. Thus, not only is the educational program constrained, but opportunities for internships and work experience are severely limited as well.

Medical and Health Services Managers: Young people are not even aware that this occupation exists, and if they did, they still wouldn't have a clear picture about what the educational requirements or occupational ladder would be for such a position. Most people who are employed in this position are former nurses, who are able to move into management. Most of them have not received any additional supervisory training, and they often take positions in the Chicago or other markets for better pay and benefits.

Pharmacists: Currently, in Northwest Indiana, there are no programs to become a pharmacist. Students have to either attend Purdue University in West Lafayette or Butler University in Indianapolis. These programs are also running at full capacity, turning away hundreds of applicants each year. Annually, about 1,000 applicants are vying for 160 openings in Purdue's doctorate of pharmacy program.[11]

The secondary root cause is that "employers are not implementing new workplace practices that meet newer workers demand". So even if the primary root cause was rectified would this root cause still have enough significance to create large shortages? Recently, Walgreen's pharmacist went on strike and union executive director Chuck Sauer had this to say, "This strike is not about pay. It is about nothing less than patient safety and the unwillingness of the company to discuss pharmacists' concerns"[12]. A pharmacist who requested to be anonymous said "they do have a legitimate complaint that we could use more help"[13].

[11] Post-Tribune, *Pharmacist in demand,* 11/9/2005, p. 1.
[12] The Times, *Pharmacist threaten to strike Walgreen*, 7/6/2005, p. 1.
[13] The Times, *Walgreens union pharmacists strike,* 7/7/2005, p. 1.

Pharmacy Technicians: Pharmacy technician programs are available in the region and at capacity. Students also receive a lot of on-the-job training from employers, but there is nowhere to go from that occupation. It is considered a dead-end job that pays relatively well, but has no career ladder. The work is also more difficult than many imagined, since they have to stay on their feet for long periods of time, and the work they do is very detail-oriented. Over time, this tends to cause stress and burnout.

Registered Nurses: Every RN program in the region is running at full capacity, creating a pipeline back log in students available to be marketed for employment. When these students are being shunned by the schools they end up taking their careers into other directions. RNs have many more employment options than ever before. They can take their skills to private practice, insurance companies, and a number of related service businesses. Most healthcare employers report that their median age for RNs is in the mid-40s, and leaving the profession earlier. As they leave or retire, it will create an even greater gap in employment. This is an endemic problem throughout the nation—not just in Northwest Indiana—but requires a local solution.

Overall, there are people in the workforce that are willing and qualified to enter these professions but are unable to because there aren't enough classrooms and/or instructors to provide them with the necessary education. Imagine if you owned a manufacturing company and year round you were running at full capacity. And you had customers banging at your door pleading to provide them with more goods. But you end up ultimately having to turn customers down as a result of not being able to supply one more product to the market place. This isn't a good business practice because you're losing revenues and business. Simply put, you're not able to keep up with demand. The long-run implications could be catastrophic as you begin to lose customers that end up going somewhere else for their goods. This same thing is happening to students in Northwest Indiana, they are the customers banging on the training facilities doors asking to be educated, but are being turned away because the production is operating at 100% and has no room to provide one more unit of output. One University representative noted that "if we increase our nursing capacity by 10 students it doubles our cost to run the program, we're dealing with diminishing rates of return here". What if capacity for all of the critical occupations were able to increase? A look at what happens is located in the next section, "Quantitative estimation of root causes".

Manufacturing

Looking at Table II.3, the root cause listed mostly under the primary reason is "Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc." So, potential entrants lack career awareness and knowledge regarding what occupations are available to them within this industry. People lack an understanding of what the manufacturing industry is truly about. There is a perception that this industry only provides jobs for non-skilled/uneducated people and all the jobs are dirty ones; this came out among multiple focus groups, in particular during the manufacturing focus group held on December 6, 2005.

When the employers matched the root causes to each occupation, only 3 of the 13 root causes were identified. There was a much more narrowed focus and consensus amongst the employers surveys. Under secondary root causes, "Job and career seekers lack confidence in this industry as a good place to build a career", is listed the most. Often during both of the High School focus groups, students were asked, "Would you enter an occupation in the manufacturing industry?" The response was, "No, I wouldn't feel safe because I would probably get laid off". While you can be laid off in any industry and in any job, the perception is that is more likely to happen in the manufacturing industry. Even though it may or may not be true, the public believes that manufacturing isn't a very secure place to seek employment, mainly because they fear they will be laid off at a moments notice. "General Motors to cut 30,000 jobs, close plants"[14], is a headline in a paper that can influence the workforce's thoughts.

Table II.3 Manufacturing-Top Root Causes

Manufacturing	Root Causes	
Occupation	**Primary**	**Secondary**
First-Line Supervisors/Managers of Production & Operating Workers	Young people do not have enough experience in potential workplaces or contact with professionals	Job and career seekers lack confidence in this industry as a good place to build a career
Inspectors, Testers, Sorters, Samplers, & Weighers	Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.	Young people do not have enough experience in potential workplaces or contact with professionals
Mechanical Engineers	Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.	Job and career seekers lack confidence in this industry as a good place to build a career
Sales Representatives	Young people do not have enough experience in potential workplaces or contact with professionals	Job and career seekers lack confidence in this industry as a good place to build a career
Welders, Cutters, Solderers, and Brazers	Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.	Job and career seekers lack confidence in this industry as a good place to build a career

First-Line Supervisors/Managers of Production & Operating Workers: The primary source for filling these positions is within the ranks, by promoting an experienced worker to management. Many people do not go into a manufacturing position with the thought of working their way up to management. They most likely do not have an associate's degree or bachelor's degree, and do not receive anything beyond on-the-job training from their employer. Building a portfolio of supervisory skills and experience is often a bewildering process. There is a tremendous need for short-term, focused programs to

[14] The Times, *General Motors to cut 30,000 jobs, close plants*, 11/22/05 p. 1.

provide training in supervision for manufacturing employers. Manufacturing employers also have a difficult time hiring someone with a bachelor's degree in a related manufacturing/engineering discipline or a business degree that included some coursework in organizational behavior and management theory, since these graduates often have little or no management experience or background in manufacturing. They also usually have a negative perception of the prospects for a career in manufacturing.

As a primary root cause, lack of experience comes into play—this is not an entry-level position. They are generally jobs given to individuals that have proven themselves in the work place. They require a vast amount of product knowledge in relation to their particular field. Just because a worker is a high performer doesn't mean they can simply become as successful as a sales representative or supervisor. These jobs take a certain type of skills to be successful. If a supervisor lacks the necessary skills (good communication, able to direct and motivate people, coordination, critical thinking, speaking) and is training the employee then most likely they will not succeed. The repercussions can be an increase in employee turnover and low employee moral, which usually results in inefficiencies and higher costs.

Inspectors, Testers, Sorters, Samplers, & Weighers: This position usually requires more attention to detail, higher-level math skills, and some work experience—knowledge of a particular process, how to measure quality, etc. Depending upon the employer, this occupation may require little or no prior knowledge or experience in manufacturing—just a proficiency in the skills listed above. People with good math skills and attention to details may be less likely to pursue a career in manufacturing due to a perception that manufacturing relies on manual labor, monotonous duties, etc. They don't know that these jobs exist, what they pay, or how to get their foot in the door.

Mechanical Engineers: This occupation is becoming more complex, especially as employers continue to utilize various quality control initiatives and more advanced processes that require more technical skills. Students often lack a two-year technical degree that is becoming a requirement among most higher-level manufacturers. Many of these workers have only on-the-job experience, but benefited from extensive training or an apprenticeship program, which is becoming a rarity as employers continue to cut costs…and as manufacturing continues to diversify into sectors that do not have broad apprenticeship programs available, unlike the steel industry.

Sales Representatives: This occupation shares much in common with supervisory positions—this is not an entry-level position; it requires extensive product knowledge and a high level of communications, marketing and customer service. There is not a formal education program for becoming a manufacturing sales representative. Young people have no perception of what opportunities exist for this occupation, which is projected to grow even more important in the region as global competition increases. Due to the volatility of the industry, it is difficult for many to overcome the perception that sales occupations in manufacturing are not stable.

Welders, Cutters, Solderers, and Brazers: This occupation is in great demand by a number of manufacturing employers—especially for those able to perform precision work. A certified welder with a good work history could find employment rather quickly…however, welding (and related) vocational programs at many high schools are disappearing at an alarming rate. Many employers have said that they would be more than willing to train someone with a good attitude and work ethic. Improving recruitment efforts and educating young people about this occupation should be a priority.

The lack of good information, confidence, and experience in the manufacturing industry were the top root causes as to why these occupations are in shortage. Even though most of them are secondary root causes, they cannot be ignored; it's significant to four of the five occupations. If the public and potential applicants had information provided to them that shed a positive light on the industry, it might establish confidence and trust in the industry as a whole as a place to find a good job. If this problem with perception isn't addressed soon, then the long-term implications could be that it will create inefficiencies beyond the imagination. It's possible that there could be good-paying jobs lying around within this industry that won't be filled because the public is afraid to go after them because they firmly believe that they will soon be laid off. People want to feel secure when working for an employer, not fearful that they will be terminated.

TDL

Table II.4 indicates a vast array of root causes across the board. The primary root cause across the industry is the "Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc". Few young people can relate to this industry; they didn't understand what it's about or what it does. In the focus groups, when students were asked to name a job in "transportation, distribution, and logistics?," not one student could give an answer, because they didn't understand the question. The question was then rephrased to ask to just name an occupation in "transportation?" The immediate response was "a truck driver". When asked to name a job in the railroad industry and one in a warehouse. They replied with a locomotive engineer and a forklift operator respectively. It was concluded that they didn't understand the words distribution and logistics.

If young people continue to lack knowledge of this industry, then how will they ever want to enter it? One trucking business owner put it like this, "most of these jobs are ones that people just fall into." If awareness is brought in a positive light to potential workers regarding these occupations then maybe people will be more apt to enter these fields. These jobs in TDL that the team deemed in shortage average nearly $40,000 per year. While attending a TDL focus group at Purdue Calumet College in Hammond, the team was able to gather input from some of the attendees. They believe the TDL industry lacks prestige associated with the types of jobs.

Table II.4 Transportation, Distribution & Logistics - Top Root Causes

TDL	Root Causes	
Occupation	**Primary**	**Secondary**
Bus/Truck Mechanics and Diesel Engine Specialists	Job and career seekers lack confidence in this industry as a good place to build a career	Employers in the region are not challenging workers & supporting them in developing new skills
Dispatchers, Except Police, Fire, and Ambulance	Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.	Young people do not have enough experience in potential workplaces or contact with professionals
First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	NWI employers do not pay enough for these jobs compared to jobs in other industries	Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.
First-Line Supervisors/Managers of Transportation & Material-Moving Machine / Vehicle Operators	Employers in the region are not challenging workers & supporting them in developing new skills	Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.
Industrial Truck/Tractor Operators	Job and career seekers lack confidence in this industry as a good place to build a career	NWI employers do not pay enough for these jobs compared to jobs in other industries
Production, Planning & Expediting Clerks	Lack of good information, what jobs & careers are available, what they pay, what the work is like, etc.	Young people do not have enough experience in potential workplaces or contact with professionals

Bus/Truck Mechanics and Diesel Engine Specialists: There are no current programs at the postsecondary level. A few high school vocational programs turn out graduates from accredited auto mechanic programs who are quickly recruited by area car dealerships—but diesel engine specialists require a higher level of skills from programs outside of the area. They often are recruited by employers outside of the region—even before they graduate.

Dispatchers, Except Police, Fire, and Ambulance: Dispatching is one of those occupations that is embedded in a number of other occupations, making it difficult to define in terms of actual employment, projected openings, and skill requirements. Dispatchers must be computer literate to track orders, drivers and other details, and have excellent communication skills. Most dispatchers are trained on-the-job, or recruited from other companies with ready-to-go skills and experience. Most young people are unaware of this occupation, what it pays, or what kind of work is performed.

First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand: Supervisors are typically recruited from the ranks—as a reward for good behavior and experience. They usually do not receive any supervisory training, and must supervise and train people who have little or no experience or skills for entry-level jobs with minimal upward mobility and low pay. They usually have to deal with a lot of turnover, management/employee issues, and work under strict deadlines. Because of the stress, they are usually able to translate their management skills to other industries in the region. Because there is no clear ladder of progression, most young people are aware of the opportunities for employment and how to get there.

First-Line Supervisors/Managers of Transportation & Material-Moving Machine / Vehicle Operators: These supervisors tend to manage a more skilled and experienced set of workers. There tends to be less turnover issues, and a more professional environment. Since forklift drivers have to be certified on-site, these supervisors are usually former forklift drivers who are certified trainers, and also provide OSHA training as well. They are usually recruited from the ranks, and operate in a lean management structure, which means that there is little room for them to progress from there, unless they move to a larger employer.

Industrial Truck/Tractor Operators: This occupation typically involves operating a forklift for loading and unloading. The work tends to be monotonous, and the need for safety is very high. These operators often have other semi-skilled responsibilities as well, including inventory management, customer service and related activities. Because of the volatility in the region when many warehouse operations lost business due to the challenges of the steel industry, many people lost their jobs in this sector, and moved on to occupations in other industries. This occupation is affected by the ups and downs of manufacturing, and the distribution of durables and nondurables. However, it is a critical occupation that will be fueled by the increased growth of TDL activity in the region. Employers report that they have had to bump up wages and benefits in the last few years in order to retain their best workers.

Production, Planning & Expediting Clerks: This occupation requires problem-solving, math, observation and other skills that are difficult for employers to recruit for. They usually hire someone from another industry and provide the necessary on-the-job training. There is no formal program to train these workers, yet there are a lot of opportunities for employment. Young people are unaware of how well this job pays relative to the amount of training and experience needed. This job is a good pathway for dispatching and supervision.

Overall, there is a need for career awareness and more formal training to support the TDL industry. At a TDL summit held in Merrillville, Indiana, where over 600 people attended, surveys were distributed that were geared to retrieving both root causes and solutions. The participants were asked “what can be done to address these shortages?” It was found that Northwest Indiana should “start a training center” because there aren’t enough transportation courses being offered. And to convey to young people that there are alternatives to going to college.

Quantitative Estimation of Root Causes

Table II.5 provides data showing the projected amount of shortages if nothing was done at all. There would be a total of 1,090 shortages by the year 2007 and 1,217 in year 2012 among these eighteen critical occupations.

Table II.5 Projected Shortages-Short (2007) & Long-Term (2012)

No change to Root Causes

Healthcare					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
29-2061	Licensed Practical and Licensed Vocational Nurses	2280	60	2,360	-16
29-2052	Pharmacy Technicians	1,035	63	1,120	71
29-2021	Dental Hygienists	500	-42	570	-148
29-2011	Medical and Clinical Laboratory Technologists	340	12	380	17
29-1111	Registered Nurses	7,270	250	7,910	348
29-1051	Pharmacists	960	98	1,030	109
11-9111	Medical and Health Services Managers	530	16	600	19
	Totals	12,915	457	13,970	400
Manufacturing					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1,625	51	1,560	55
51-4121	Welders, Cutters, Solderers, and Brazers	1,975	207	1,980	378
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	2,620	28	2,580	32
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,360	200	2,400	231
17-2141	Mechanical Engineers	510	-1	480	-43
	Totals	9,090	485	9,000	653
TDL					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
53-7051	Industrial Truck and Tractor Operators	1,845	58	1,760	62
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	595	-1	600	-3
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	485	12	480	18
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,015	21	1,030	24
43-5061	Production, Planning, and Expediting Clerks	1,485	48	1,400	54
43-5032	Dispatchers, Except Police, Fire, and Ambulance	330	10	330	9
	Totals	5,755	148	5,600	164
	Totals for 3 Industries	27,760	1,090	28,570	1,217

[1] *Based on straight-line method*
Employment Source: Indiana Workforce Development Agency

What if the most critical root causes that match the occupations and/or industry were altered, eliminated, or addressed? What sort of impact would these changes have on both the short and long-term shortages?

If the most important root cause by occupation (See Table II.2,II.3,II. 4), were able to be addressed and rectified, the region would need the output of new qualified workers in each occupation (Table II.6). Not only would they have to be qualified, but they would have to be hired and introduced into the occupations. If these numbers can remain annually consistent over the next seven years, then the current shortages that exist now will become much more manageable by the year 2012. The estimates assume that the demand for all 18 occupations will remain constant over both the long and short runs.

Table II.6 New Annual Capacity Necessary (2005-2012)

Code	Occupational Title	Annual Capacity
Healthcare		
29-2061	Licensed Practical and Licensed Vocational Nurses	7
29-2052	Pharmacy Technicians	12
29-2021	Dental Hygienists	0
29-2011	Medical and Clinical Laboratory Technologists	3
29-1111	Registered Nurses	55
29-1051	Pharmacists	20
11-9111	Medical and Health Services Managers	4
	Totals	**101**
Manufacturing		
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	10
51-4121	Welders, Cutters, Solderers, and Brazers	60
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	7
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	33
17-2141	Mechanical Engineers	0
	Totals	**110**
TDL		
53-7051	Industrial Truck and Tractor Operators	10
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	0
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	4
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	4
43-5061	Production, Planning, and Expediting Clerks	9
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2
	Totals	**25**
	Totals for 3 Industries	**236**

Table II.7 shows what the shortages would look like if the number of qualified workers mentioned in Table I.6 became a reality. There would be a total of 637 shortages by the year 2007 and the region would actually have a more manageable number by year 2012.

Table II.7 Projected Shortages-Short (2007) & Long-Term (2012)

Changes Made to Root Causes

Healthcare					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
29-2061	Licensed Practical and Licensed Vocational Nurses	2280	47	2,360	-61
29-2052	Pharmacy Technicians	1,035	39	1,120	-13
29-2021	Dental Hygienists	500	-42	570	-148
29-2011	Medical and Clinical Laboratory Technologists	340	6	380	-4
29-1111	Registered Nurses	7,270	150	7,910	-2
29-1051	Pharmacists	960	58	1,030	-31
11-9111	Medical and Health Services Managers	530	9	600	-6
	Totals	**12,915**	**267**	**13,970**	**-265**
Manufacturing					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1,625	34	1,560	-6
51-4121	Welders, Cutters, Solderers, and Brazers	1,975	97	1,980	-4
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	2,620	14	2,580	-17
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,360	134	2,400	0
17-2141	Mechanical Engineers	510	-1	480	-143
	Totals	**9,090**	**278**	**9,000**	**-170**
TDL					
Code	Occupational Title	2007[1] Employment	2007 Shortages+ Surpluses-	2012 Employment	2012 Shortages+ Surpluses-
53-7051	Industrial Truck and Tractor Operators	1,845	38	1,760	-8
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	595	-1	600	-3
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	485	4	480	-10
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,015	13	1,030	-4
43-5061	Production, Planning, and Expediting Clerks	1,485	22	1,400	-1
43-5032	Dispatchers, Except Police, Fire, and Ambulance	330	6	330	-5
	Totals	**5,755**	**92**	**5,600**	**-31**
	Totals for 3 Industries	**27,760**	**637**	**28,570**	**-466**

[1] *Based on straight-line method*
Employment Source: Indiana Workforce Development Agency

Section III: Regional Consortium and Industry Partner Engagement

As in Phase I of the SSI project, the team felt comfortable with the level of industry and partner engagement that was realized in support of the root causes analysis. The SSI project has catalyzed new relationships between community organizations and firms in the key industries. They are the foundation and the beginning of working partnerships.

Coalition Partner Involvement in Determining Root Causes

As detailed in the *Occupation and Skills Shortage Report*, in July and August 2005, a project advisory structure was established intended to guide the SSI project's three phases. The structure comprises a Regional Industry Consortium that includes representatives from key business, education and economic development organizations as well as firms representing a range of industries important to the region. The Industry Consortium has provided high-quality intelligence during the first two phases of the SSI project, and helped to open the doors of their peer organizations and firms to the SSI research team. Consortium members are very helpful in disseminating surveys to their employees, their industry peers, and members of trade and professional associations to which they belong.

The Executive Team comprises a smaller group of education, economic development and industry experts from across the region. This group provided hands-on guidance and advice to the research team, and made final decisions about the key industries, occupations and root causes.

The research team engaged both groups in the process that included; conducting interviews with members, disseminating surveys, soliciting advice and framing important economic and workforce issues in ways appropriate for a large interdisciplinary audience. The Industry Consortium has convened twice—once during each phase of the project—and the Executive Team three times—once in Phase I and twice in Phase II. Members of both groups generously participated in regular conference calls and meetings between formal events.

Each group had formal and informal input into the selection of root causes for the region's key industries:

- They were interviewed and surveyed.
- They participated in formal meetings and in meetings of other stakeholder groups, such as the Chamber of Commerce and the NW Indiana Forum, where information about SSI was presented.
- They received regular e-mail correspondence and requests for input.
- They participated in conference calls in which SSI was addressed.
- And they helped prioritize and organize root cause data toward the end of the analysis phase.

There was universal agreement among members of both the Industry Consortium and Executive Team that the root causes were interrelated and were more relevant to an industry-level analysis than an occupational-level one. They repeatedly argued that if there were "more skilled people in the pipeline," the occupational shortages would be alleviated and there would be more flexibility across the workforce in each industry. The Manufacturing and Transportation/Distribution/Logistics industry partners in particular pointed out that the shortage occupations are those people 'just sort of fall into.' Several offered some version of the following observation:

"No one grows up saying they want to be a 'first-line supervisor of production and operating workers'. If more people knew our industries and understood the kind of work available, a lot would change in all occupational categories."

While there was broad consensus on the root causes of shortages in the Manufacturing and transportation/distribution/logistics industries, root causes of shortages in Healthcare provoked some disagreement—with some individuals pointing to the lack of training capacity in the region and others to a more complex set of interrelated dynamics among the 13 key root causes.

In addition to the formal advisory structure, a broad array of education, economic development and industry partners were engaged informally through telephone calls, e-mail, surveys, focus groups and presentations at meetings in the region, such as the Local Economic Development Officers (LEDO) meeting. The *WorkOne* partners were also appealed to gather intelligence on occupation and skills shortages and their root causes from their own business partners.

Finally, a search was made of personal and professional networks for individuals who would lend valuable insight to the project. This helped identify individuals who had once worked in one of the key industries but had changed careers, others who had returned to school, others who had been laid off, and still others who continue to work in the key industries. Again, interviews and surveys were conducted with these stakeholders, who added tremendous insight to the analysis.

This comprehensive engagement resulted in four key sources of data that developed the initial list of over 70 root causes of shortages in the three key industries:

- Survey data
- Interviews
- Focus group discussions
- Secondary source research

The research team narrowed the list to 27 root causes by eliminating duplicates and organizing them into the following categories:

- Talent Pipeline Issues
- Education and Training Capacity
- Leakage and Brain Drain
- Employer Recruitment and Retention Practices

- Wage Rates and Benefits
- Other

During the first week of December 2005, the Industry Consortium group convened during which members were asked to assign a numerical value to each root cause, reflecting the importance of that root cause to the occupation and skills shortage in that industry. Much of the meeting was devoted to a discussion of root cause findings to date. This information was then summarized and presented it to the Executive Team, which engaged in a similar exercise, narrowing the list to the 13[15] root causes discussed in Section I of this report. Finally, during the last week of analysis, the Industry Consortium and Executive Team members were contacted over the telephone to ask them to prioritize root causes associated with the shortage occupations, even though most felt that the root causes should be linked to industries rather than to specific occupations.

Regional Nature of Root Causes Analysis

The data collection process, which included questions about the geographic locations of engaged individuals and firms from every county in the seven-county region. Moreover, meetings were purposefully convened in different locations to make them more accessible to individuals in outlying counties. Finally, 10 Phase II focus groups were convened in different locations in the region, ranging from Michigan City to Hammond, and conducted 32 interviews with experts from at least four counties

The team is working to understand the competitive advantages of a seven county region, not just a collection of rural and urban areas occupying the northwest corner of the state. The SSI project has served well toward that end. The SSI Team looks forward to improving the linkages and ability to collaborate across boundaries of all kinds as the project continues to unfold.

Support of Industry Education and Community Partners

As in Phase I, the team did their best to communicate all aspects of the SSI project well. Information about, and input received was derived from secure delivery partners, including WorkOne, K-12 schools, Ivy Tech, and local universities and branch campuses.

The team placed SSI on the agenda of regular meetings and invited select staff to events and meetings with the Executive Team, even though they were not members.

[15] The team followed the methodology offered by the statewide SSI team to arrive at these 13 Root Causes, but we understand that we can only reasonably expect to impact a percentage of these. The team plans to determine those most actionable during the solutions phase of the SSI project. As noted in the executive Summary and Analysis sections of this report, four stand out for their importance and perceived impact.

Specific outreach efforts were made to the following stakeholder groups:

- Northwest Indiana Forum (NWIF)
- Northwest Indiana Regional Planning Commission (NIRPC)
- The Kankakee-Iroquois Regional Planning Commission (K-IRPC)
- KV Works (KV)
- Workforce Development Services (WDS)
- Regional Development Authority
- Regional Development Corporation (RDC)
- Porter County Economic Development Alliance
- La Porte County Economic Development Partnership Alliance
- Quality of Life Council (QLC)
- Northwest Indiana Study Council
- Northwest Indiana Chamber Executives Association

As noted in the Occupation and Skills Shortage Report, the team had some difficulty engaging stakeholders who had participated in the Industry Cluster projects. Many felt that similar research had just been completed and requested that findings from that project were incorporate into the SSI research.

Nonetheless, in the Root Causes Phase alone, the team was able to:

- Convene 11 focus groups
- Conduct 32 interviews
- Administered 122 root cause surveys

Together with the 143 employer and 216 employee surveys, 14 interviews and three focus groups conducted during Phase I, the outreach and the success of the data collection efforts instilled confidence among members of the Industry Consortium and Executive Team in the findings, as evidenced by their signatures in support of this report.

Without the commitment of these stakeholders to the economic success of the region, the team could not have done this work. The SSI Team looks forward to the next Phase of the SSI project, solving some of the complex and compelling challenges identified in Northwest Indiana.

Appendix A. Sample Interview, Focus Group Protocol for Employers

If Focus Group, have the following list available in paper and on a flip chart:

Industry	Occupation
Healthcare	Registered Nurses
	Licensed Practical and Licensed Vocational Nurses
	Pharmacists
	Pharmacy Technicians
	Medical and Health Services Managers
	Dental Hygienists
	Medical and Clinical Laboratory Technologists
Manufacturing	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
	First-Line Supervisors/Managers of Production and Operating Workers
	Welders, Cutters, Solderers, and Brazers
	Inspectors, Testers, Sorters, Samplers, and Weighers
	Mechanical Engineers
TDL	Production, Planning, and Expediting Clerks
	Industrial Truck and Tractor Operators
	Bus and Truck Mechanics and Diesel Engine Specialists
	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators
	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand
	Dispatchers, Except Police, Fire, and Ambulance

If the FG or interview is with a person or people in one industry, you only ask about the shortages related to their industry.

1. "We identified these shortages using a variety of qualitative and quantitative methods. In your experience, does this ring true? Are there shortages in these areas?
2. Why do you think these shortages exist for you and or your colleagues in the industry?

   Are there reasons linked to recruitment strategies?
   Are there reasons linked to educational programs or requirements?
   Are there reasons linked to pipeline? (no one entering field)
   Are there reasons linked to leakage (people leaving the area)
   Are there reasons linked to wages/pay?

3. We have also identified skills shortages in the following areas:

   Reading comprehension
   Problem-solving
   Critical thinking
   Applied math
   Communication
   "Work-ethic"
   An overall shortage of individuals with degrees

   Does this ring true?

4. What are the most important causes of these shortages? (then pursue the "why" questions…)

5. What is one thing that could be done to address these skills/occupational shortages?

6. (then pursue what they suggest with a line of how and why questions)

7. Can you name another thing that could be done?

Appendix B. Root Causes Survey Example (Healthcare)

Industry	Occupation
Healthcare	Registered Nurses
	Licensed Practical and Licensed Vocational Nurses
	Pharmacists
	Pharmacy Technicians
	Medical and Health Services Managers
	Dental Hygienists
	Medical and Clinical Laboratory Technologists
Manufacturing	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
	First-Line Supervisors/Managers of Production and Operating Workers
	Welders, Cutters, Solderers, and Brazers
	Inspectors, Testers, Sorters, Samplers, and Weighers
	Mechanical Engineers
TDL	Production, Planning, and Expediting Clerks
	Industrial Truck and Tractor Operators
	Bus and Truck Mechanics and Diesel Engine Specialists
	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators
	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand
	Dispatchers, Except Police, Fire, and Ambulance

Shortage Occupations:
Licensed Practical Nurses & Licensed Vocational Nurses
Pharmacy Technicians
Dental Hygienists
Medical and Clinical Lab Technologists
Registered Nurses
Pharmacists
Medical and Health Service Managers

Please rank the following suggested root causes for shortages in the target Healthcare occupations in terms of their importance.

1=Not Important **2=Important** **3=Very Important**

Circle one			Suggested Root Cause
			Talent Pipeline Issues
1	2	3	Good information—what jobs & careers are available, what they pay, what the work is like, etc.—is not getting to young people in ways they can/do use it
1	2	3	Young people (K-12, college) do not have enough meaningful experience in potential workplaces or contact with industry professionals to positively influence their career interests/decisions
1	2	3	Students lack preparation to enroll in training/college/certification programs and successfully complete them
			Education and Training Capacity
1	2	3	Regional training program content does not correspond to employment demands
1	2	3	Training programs in the region have excess capacity/not enough enrollment
1	2	3	Training programs (or slots) in the region are not available in sufficient numbers (existing programs are full and employment demand remains unmet)
1	2	3	Training programs in the region have enough enrollments but not enough graduates (too many drop outs)
1	2	3	Training programs in the region are not sufficiently distributed throughout the community—people cannot get to them
1	2	3	Training programs in the region are not scheduled to accommodate working people who are likely to enroll in them
1	2	3	The cost of training is prohibitive
			Leakage & "Brain Drain"
1	2	3	Too many skilled people leave the region to build their careers
1	2	3	Too many students who enroll in the region's colleges / universities leave the state when they complete their education and training
1	2	3	Too much local talent commutes to Chicago
			Employer Recruitment and Retention Practices
1	2	3	Employers' recruiting methods are not reaching available skilled workers
1	2	3	Employers in the region are screening out skilled applicants
1	2	3	Employers in the region are not sufficiently orienting new workers to the job, company, industry and career
1	2	3	Employers in the region are not challenging workers and supporting them in developing new skills and talents

1	2	3	Employers in the region are not implementing new workplace practices (e.g. telecommuting, flexible hours) in ways newer workers demand
1	2	3	Employers in the region are not competently measuring, recognizing and rewarding high performance among employees
1	2	3	Stress and burnout among employees
Wage Rates & Benefits			
1	2	3	NW Indiana employers do not pay enough for these jobs compared to jobs in other industries
1	2	3	NW Indiana employers do not pay as well as employers in the Chicago metro area, so skilled workers commute
1	2	3	Benefits are not competitive with those other industries
1	2	3	Benefits are not competitive with those in other locations/regions
Other			
1	2	3	Job and career seekers lack confidence in this industry as a good place to build a career (instability, lack of prestige, limited upward mobility, etc.)
1	2	3	Workforce is not sufficiently diverse—it doesn't attract other diverse workers
1	2	3	Demographic changes (aging workforce, increasing diversity, gender imbalances)

In your experience, generally speaking, which of the following is the most important root causes of shortages in these occupations? (Check one)

- ☐ There are not enough young people seeking careers in this industry
- ☐ The region's education and training capacity for this industry is inadequate in the region
- ☐ Too much skilled talent leaves the region
- ☐ The industry's recruitment and retention practices are not competitive
- ☐ The industry's wages and benefits are not competitive
- ☐ People lack confidence in the industry as a place to build a career
- ☐ The industry's workforce in the region is not sufficiently diverse
- ☐ Demographic changes
- ☐ Other _____

Appendix C. Sample Interview Protocols, Phase II

Key Questions for Brief Interviews
[As we accumulate root causes, we can test them/validate]

Employers:

Confirm shortage occupations/skills, or note differences between the findings and their experiences

- Why do these shortages exist? (then ask why again, push this)
- What might the industry do about these shortages?
- What might schools (k-12) do?
- What might colleges/training programs do?
- What might communities do?
- What might government do?

Educators:

Confirm shortage occupations/skills, or note differences between the findings and their experience/knowledge

- Why do these shortages exist? (then ask why again, push this)
- What might the industry do about these shortages?
- What might schools (k-12) do?
- What might colleges/training programs do?
- What might communities do?
- What might government do?

Chambers. Industry Associations, Trade Groups, etc.

Confirm shortage occupations/skills, or note differences between the findings and their experiences

- Why do these shortages exist? (then ask why again, push this)
- What might the industry do about these shortages?
- What might schools (k-12) do?
- What might colleges/training programs do?
- What might communities do?
- What might government do?

Appendix D. Online Survey Example

1. About how many people does your firm employ in Indiana?

2. Is the mix of people (occupations & skills) you employ similar to what it was one year ago?

- [ ] Yes
- [ ] No, our jobs require more skills/training
- [ ] No, our jobs require less skills/training
- [ ] No, our jobs require different skills/training
- [ ] Other (please specify)

3. In which county is your firm based (locally)?

- ( ) Jasper
- ( ) Lake
- ( ) La Porte
- ( ) Newton
- ( ) Porter
- ( ) Pulaski
- ( ) Starke
- ( ) We're based in Illinois, but do business in NWIN
- ( ) Other (please specify)

4. We have conducted a quantitative analysis of occupational shortages in the Healthcare industry within our Region. The occupations are listed in the table below. To the extent you can, please indicate whether you personally are aware of shortages in these areas.

	I have experienced shortages	I know of shortages but have not experienced them myself	I am not aware of shortages	I am not familiar with this occupation
Dental Hygienists	O	O	O	O
Licensed Practical Nurse	O	O	O	O
Medical & Clinical Laboratory Technologists	O	O	O	O
Medical and Health Services Managers	O	O	O	O
Pharmacists	O	O	O	O
Pharmacy Technicians	O	O	O	O
Registered Nurses	O	O	O	O

5. In which of these occupations are the shortages you have experienced most acute? (if none, please answer "N/A")

6. In your opinion, what are the MOST PROBABLE CAUSES of these shortages? (select only 2)

- Industry not attractive to career entrants
- Pay/Benefits package (NWIN) not enough to attract
- Job seekers do no know much about these jobs
- Job seekers do not have skills for these jobs
- Too few schools preparing workers for these jobs
- Job is very demanding, takes a certain personality
- We can hire people for jobs, but can't keep them
- Demands of jobs are changing too fast
- Hiring practices can't keep up
- Stress on the job

7. In thinking about your own firm's hardest-to-fill position, what is your MOST effective recruiting method? (check ONE)

- Referrals
- Newspapers
- Internet
- Private Recruiting Firms
- Staffing Agencies
- WorkOne Offices
- College placement office, internship program
- Community job programs and training firms
- Schools/Training Programs
- Other (please specify)

8. When new people are hired for these hardest-to-fill jobs, what is the specific skill set they most often lack? (check all that apply)

- Active Listening
- Reading Comprehension
- Speaking
- Critical Thinking
- Service Orientation
- Other (please specify)

9. Name one thing that could be done to dramatically improve your ability to hire and retain skilled workers in jobs you have difficulty filling.

Appendix E. Critical Occupations Education Requirements

SOC Code	Occupational Title	Education Requirements
29-2061	Licensed Practical & Licensed Vocational Nurses	Postsecondary vocational training
29-2052	Pharmacy Technicians	Moderate-term on-the-job training
29-2021	Dental Hygienists	Associate's degree
29-2011	Medical & Clinical Laboratory Technologists	Bachelor's degree
29-1111	Registered Nurses	Associate's degree
29-1051	Pharmacists	First professional degree
11-9111	Medical & Health Services Managers	Work exp. + BA or higher degree

SOC Code	Occupational Title	Education Requirement
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	Moderate-term on-the-job training
51-4121	Welders, Cutters, Solderers, and Brazers	Postsecondary vocational training
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	Work experience in related occupation
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	Moderate-term on-the-job training
17-2141	Mechanical Engineers	Bachelor's degree

SOC Code	Occupational Title	Education Requirements
49-3031	Diesel Mechanics	Postsecondary vocational training
43-5032	Dispatchers	Short-term on-the-job training
53-1021	1st-Line Supervisors	Work experience in related occupation
53-7051	Forklift Drivers	Short-term on-the-job training
43-5061	Production, Planning, and Expediting Clerks	Short-term on-the-job training

Appendix F. Executive Team

Shortly after the SSI project was announced in summer of 2005, the Center of Workforce Innovations (CWI) and the Lake County Integrated Services Delivery Board (LCISDB) convened a *Planning Consortia* to take responsibility for the project's launch. This group became the project's Executive Team. This group included:

- **Deb Butterfield**, President, Greater Valparaiso Chamber of Commerce and Officer, Valparaiso Economic Development Corporation
- **Harold Foster**, President of Tugtel Communications and former Chairman of the Gary Chamber of Commerce
- **Vincent Galbiati**, Executive Director, Northwest Indiana Forum
- **John Greaves**, U.S.WA 6787, former President of the Northwest Indiana Chapter of the AFL-CIO and current Program Chair for Manufacturing Industrial Technology with Ivy Tech Community College of Indiana
- **Dr. Jeff Jones**, Assistance Vice Chancellor for Engagement at Purdue University North Central
- **Colleen Reilly**, Director of Communications and Public Affairs for NIPSCO (public utility serving Northern Indiana)
- **Jennifer Whaley**, the Executive Director for Newton County Economic Development

Appendix G: Industry Consortium

Name	Company	County
HEALTH CARE		
Amy Bean	Pulaski Hospital	Pulaski
Tony Ferracane	Community Hospital System	Lake
Gary Mitchell	Opportunity Enterprises	NWI
Connie Ford	La Porte County Hospital	La Porte
IT		
Greg Scasny	Golden Technologies	Porter
Richard Barnes	Hokey Spokes	Lake
TDL		
Bob Ernth	NICTD	NWI
Travis Colbaugh	Smith Transport	Jasper
MANUFACTURING		
Scott Farrisee	The Chicago Faucet Company	La Porte
Steve Wagner	Local 1010	Lake
Jim Hicks	JW Hicks	HWI
Jim Wozniak	Mittal Steel	NWI
PROFESSIONAL SERVICE		
Mike Baird	Mercantile Bank	NWI
Bill Joiner	Structure Resources	Lake
LIFE SCIENCES		
P. Scott Bening	Monsol LLC	NWI
ENTERTAINMENT/HOSPITALITY		
Charlotte Cook Hawkins	Trump Casino	Lake
EDUCATION		
Dr. Dee Haklin	Ivy Tech Community College	NWI
AGRICULTURE		
Matt Gibson	Gibson Farms	Newton

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